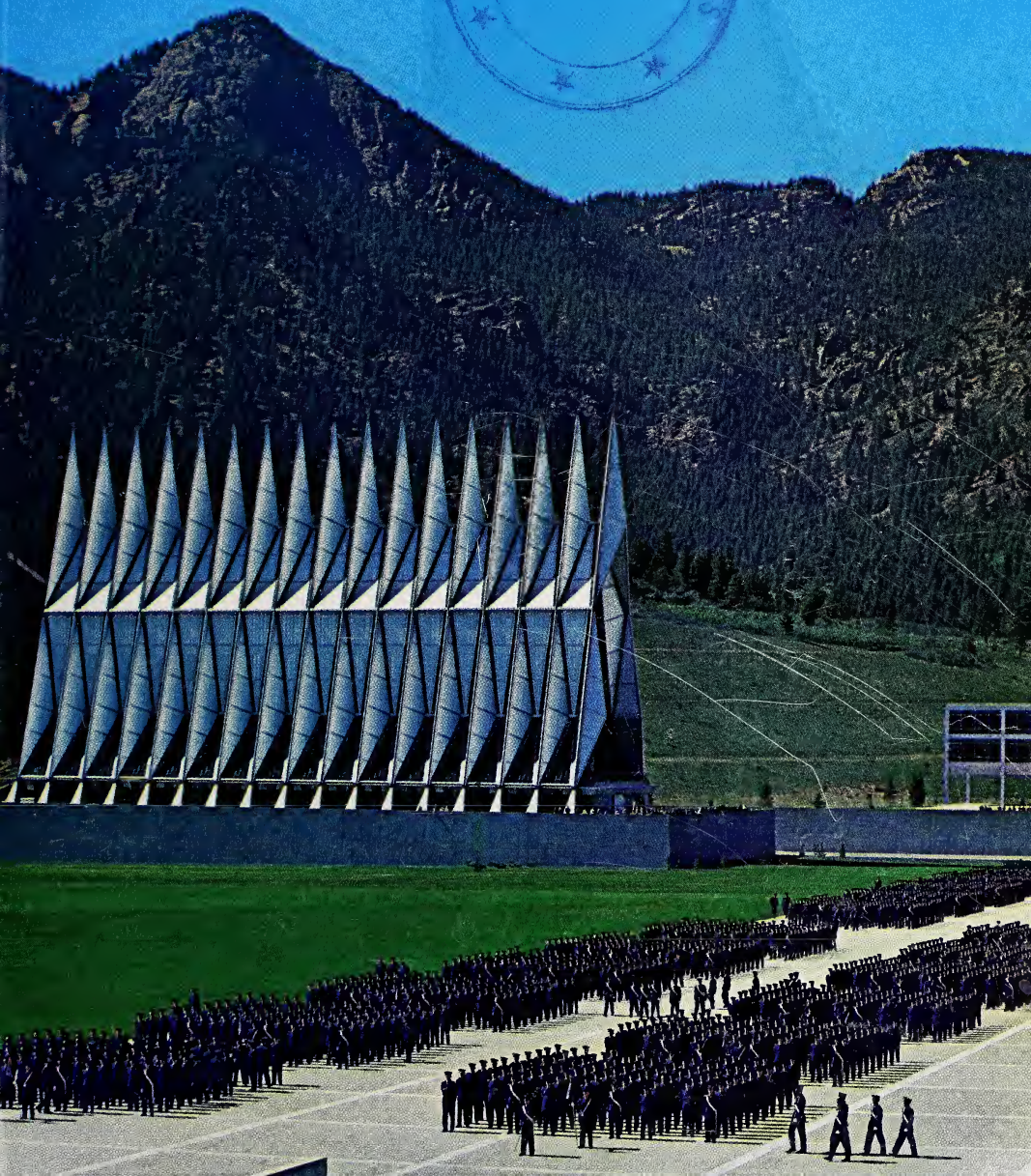



0305.8:949-65 ✓

CATALOG UNITED STATES 1964 AIR FORCE ACADEMY 1965

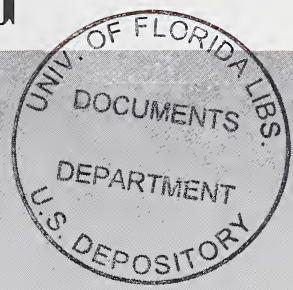




Digitized by the Internet Archive
in 2016 with funding from
University of Florida, George A. Smathers Libraries

FLARE

ANNUAL CATALOG



number 9 • may 1964



This catalog should not be considered a contract between the United States Air Force Academy and any prospective candidate. The curriculum and policies are subject to change to meet varying requirements of the Air Force.

CONTENTS

4	Calendar
5	Mission
6	Superintendent's Letter
7	Objectives
8	Board of Visitors
9	Officers of Administration
10	History
12	Facilities
14	Map of the Academy
16	Admissions
45	Preparation
52	The Academy Curriculum
60	The Academic Program
61	Courses of Study
103	Undergraduate Majors
107	Master's Program
109	Lecture Program
111	The Academy Assembly
112	The Academy Library
114	Research Program
115	Academic Services
116	Leadership and Military Training
126	Physical Education and Athletics
130	Cadet Life
142	Career Information
145	Thomas D. White Award
146	Personnel Directory
174	Index

CALENDAR 1964-1965

3 Jun 64, Wednesday	<i>Summer Term Begins</i>
29 Jun 64, Monday	<i>Class of 1968 Enters</i>
3 Jul 64, Friday	<i>Holiday, Independence Day</i>
20 Aug 64, Thursday	<i>Summer Term Ends; Fall Semester Begins</i>
7 Sep 64, Monday	<i>Holiday, Labor Day</i>
11 Nov 64, Wednesday	<i>Holiday, Veterans' Day</i>
26-27 Nov 64, Thursday and Friday	<i>Thanksgiving Holidays</i>
19 Dec 64, Saturday	<i>Fall Semester Ends; Christmas Leave Begins</i>
5 Jan 65, Tuesday	<i>Christmas Leave Ends; Spring Semester Begins</i>
22 Feb 65, Monday	<i>Holiday, George Washington's Birthday</i>
18-21 Mar 65, Thursday thru Sunday	<i>Mid-Semester Holiday</i>
31 May 65, Monday	<i>Holiday, Memorial Day</i>
4 Jun 65, Friday	<i>Spring Semester Ends</i>
5-9 Jun 65, Saturday thru Wednesday	<i>June Week</i>
9 Jun 65, Wednesday	<i>Graduation Day, Class of 1965; Summer Term Begins</i>
28 Jun 65, Monday	<i>Class of 1969 Enters</i>

MISSION



The Air Force Academy provides instruction, experience, and motivation to each cadet so that he will graduate with the knowledge, character, and qualities of leadership essential to his progressive development as a career officer in the United States Air Force.



***TO: Young men interested in
the Air Force Academy***

The primary effort of a cadet during four years at the Air Force Academy is spent in meeting the requirements for an academic degree. But the Academy offers more and asks more than academic achievement. The cadet must also learn and demonstrate that he can fulfill the obligations of command with all the leadership skill, self-control, and ethical conduct which that responsibility demands.

Before you seek a cadet appointment, match yourself, your abilities, your aspirations, your personality, and your health against the demands of cadet life and a service career. Do not limit yourself to this catalog in learning what the Academy offers and requires. Read all you can find about the Academy in periodicals and books and talk with someone who has first-hand knowledge of the Academy if you have an opportunity.

We can determine whether you are academically and physically able to master the Academy program. But we must depend largely upon you to measure your motivation. You must satisfy yourself that you belong at the Academy, that you are motivated on the strength of your own desires rather than the push of a well-meaning parent or friend, and that you have a real understanding of the purpose and obligations of cadet life. If you can do this, you will have every chance to succeed as a cadet.

ROBERT H. WARREN
Major General, USAF
Superintendent

OBJECTIVES

The Air Force Academy accomplishes its mission through a four-year curriculum composed of academic courses, leadership and military training, physical education and athletics. Completion of the curriculum entitles the cadet to graduate with a Bachelor of Science degree and a Regular commission as a second lieutenant.

The Academic Program

Provides general courses in liberal arts and sciences which furnish a foundation for future development in any of the numerous career fields open to Air Force officers.

Provides elective courses to meet the needs of the individual cadet in developing his full academic potential.

Motivates the cadet for continued educational development after graduation by self-instruction and attendance at graduate schools.

Prepares the cadet to fulfill his intellectual duties as a citizen and a dedicated public servant in the Air Force.

Leadership and Military Training

Develops in the cadet the moral character and qualities of leadership desired in an Air Force officer.

Instills in the cadet a deep founded belief in national defense, pride in the Air Force, and inspiration to give his best in a lifetime of service to his country.

Equips the cadet with fundamental military knowledge and skills required of a junior officer, and provides him with the professional military education for continued development leading to the highest command and staff positions.

Motivates the cadet toward a career in the aerospace age and provides a foundation for future specialization in manned and unmanned aerospace systems.

Physical Education and Athletics

Develops desirable traits of character such as persistence, desire-to-win, and aggressiveness which are essential to leadership.

Develops those qualities needed to perform physical tasks without undue strain.

Develops a positive attitude toward physical fitness.

Promotes the *esprit de corps* of the Cadet Wing through healthy competition and pride in an outstanding athletic program.

BOARD OF VISITORS

Appointed by the President of the United States

Dr. Thomas H. Carroll	<i>President, George Washington University, Washington, D. C.</i>
Dr. Fred H. Harrington	<i>President, University of Wisconsin, Madison, Wisconsin</i>
Mr. John Lawrence	<i>Chairman of the Board of Dresser Industries, Inc., Dallas, Texas</i>
Mr. Harold C. Stuart	<i>President of KVOO Radio and TV, Former Assistant Secretary of the Air Force, Tulsa, Oklahoma</i>
Gen. Thomas D. White (Ret.)	<i>Former Chief of Staff, USAF, Washington, D. C.</i>
Dr. Payson S. Wild	<i>Dean of Faculties, Northwestern University, Evanston, Illinois</i>

Appointed by the Vice President of the United States

Sen. Roman L. Hruska	<i>Nebraska</i>
Sen. Gale McGee	<i>Wyoming</i>
Sen. Stuart W. Symington	<i>Missouri</i>

Appointed by the Speaker of the House

Rep. J. Edgar Chenoweth	<i>Third District of Colorado</i>
Rep. John F. Flynt, Jr.	<i>Fourth District of Georgia</i>
Rep. Melvin R. Laird	<i>Seventh District of Wisconsin</i>
Rep. Byron G. Rogers	<i>First District of Colorado</i>

Ex-officio Members of the Board

<i>Chairman of the Armed Services Committee of the Senate</i>	
Sen. Richard B. Russell	<i>Georgia</i>
<i>Represented by</i>	
Sen. Daniel K. Inouye	<i>Hawaii</i>

<i>Chairman of the Armed Services Committee of the House</i>	
Rep. Carl Vinson	<i>Sixth District of Georgia</i>
<i>Represented by</i>	
Rep. Edward F. Herbert	<i>First District of Louisiana</i>

A Board of Visitors is established by law to inspect the curriculum, instruction, and facilities of the Academy each year.

OFFICERS OF ADMINISTRATION

SUPERINTENDENT

Maj. Gen. Robert H. Warren, B.S.

DEAN OF THE FACULTY

Brig. Gen. Robert F. McDermott, B.S., M.B.A., LL.D.

COMMANDANT OF CADETS

Brig. Gen. Robert W. Strong, Jr., B.S.

DIRECTOR OF ATHLETICS

Col. Edmund A. Rafalko, B.S., M.A.

CHIEF OF STAFF

Col. Ralph J. Hallenbeck, B.S.

COMMAND CHAPLAIN

Col. Rosario L. U. Montcalm, P.D., B.A.

REGISTRAR

Col. Virgil J. O'Connor, B.A., M.A., Ed.D.

The Academy Board

Superintendent, *President of the Board*

Dean of the Faculty	Chairman, Basic Sciences Division
Commandant of Cadets	Chairman, Applied Sciences Division
Director of Athletics	Chairman, Humanities Division
Registrar	Chairman, Social Sciences Division
Deputy Commandant of Cadets	Head, Department of Physical Education
	Director, Cadet Operations and Training

HISTORY

A separate service academy to prepare outstanding young men of the nation for military leadership in air defense had been the dream of American airmen since World War I. This dream was realized at last when President Eisenhower signed legislation establishing the Air Force Academy on 1 April 1954.

The first major step toward creation of the Air Force Academy was taken in January 1949, when the first Secretary of Defense James Forrestal appointed a service academy board to determine among other matters the need for a third service academy. The chairman of this board was Dr. Robert L. Stearns, then President of the University of Colorado, and the vice chairman was General



Dwight D. Eisenhower, then President of Columbia University. The Board found that the needs of the Air Force could not be met by any desirable expansion of the existing service academies and recommended that an Air Force Academy be established without delay. It was not until 1954, at the close of the Korean conflict, that Congress authorized establishment of the Academy.

The effort to choose a site for the Academy began immediately. Harold E. Talbott, then Secretary of the Air Force, appointed a site selection committee, composed of prominent civilian and military leaders, who screened some 400 locations and visited proposed sites in 22 states. On 24 June 1954, Secretary Talbott announced that the site eight miles north of Colorado Springs would be the permanent home of the Air Force Academy. Lowry Air Force Base in Denver was named as the temporary site of the Academy until construction of the permanent Academy was completed.

General Hubert R. Harmon, who had been a member of the site selection committee, came back to active duty from retirement at the personal request of President Eisenhower to become the first Superintendent of the Air Force Academy. Under his direction a program of education, with the flexibility to meet rapidly changing developments of the aerospace age, was carefully designed and perfected. The basic fundamentals and the newest findings of science were blended with the social sciences and the humanities to form a balanced program of education for future Air Force officers.

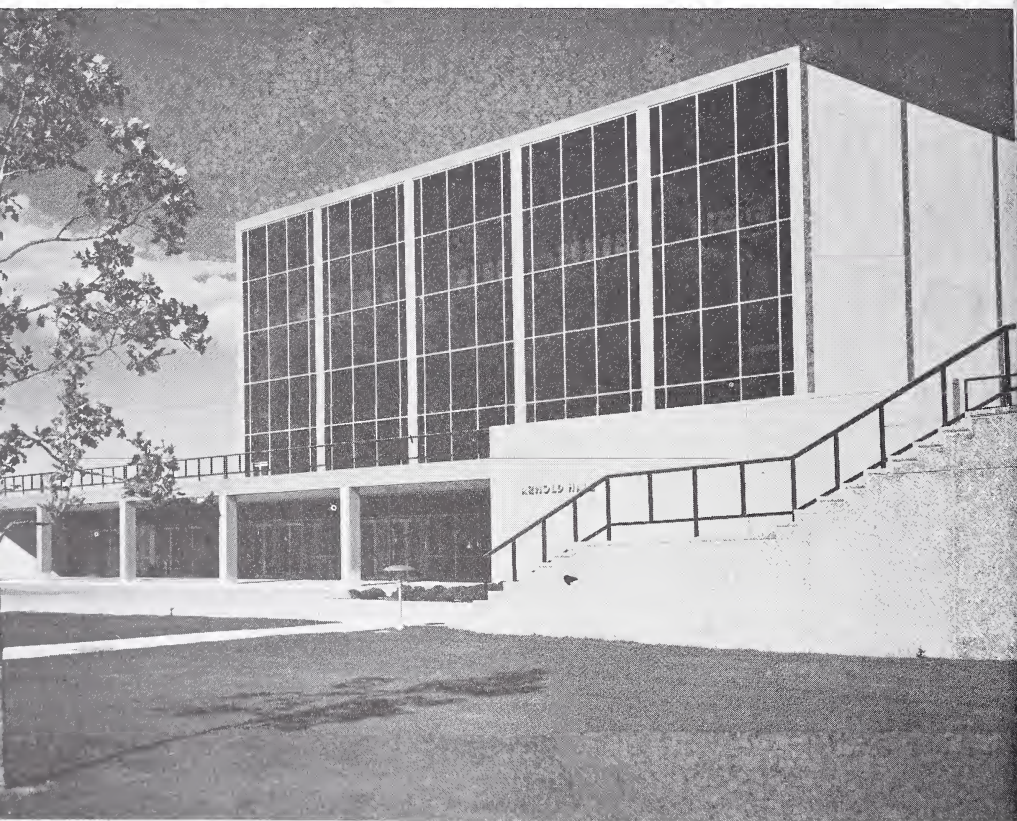
On 11 July 1955, in ceremonies at Lowry Air Force Base, the nation dedicated its first new service academy in more than a century. At these ceremonies the first class of 306 cadets was sworn in. While a curriculum, a tradition, and a way of life were being formed at Lowry, one of the greatest community building projects in the nation's history went into operation at the permanent site some sixty miles away. The Academy builders moved at a fast pace on this prodigious project. They were asked to have the cadet buildings ready for occupancy by the time the first class reached its final year — and the goal was met. On 29 August 1958, the cadets began to move into their new quarters in the shadow of the Rampart Range of the Rockies.

In 1962 the Cadet Wing reached its authorized strength of approximately 2,500 cadets. In 1964 Congress passed a law increasing the authorized strength to 4,417 cadets.

FACILITIES

The Academy site stretches for 17,900 acres, with 10,000 suitable for construction. This expanse of land has allowed for an airfield and further plant expansion if Congress should so order. The topography of the site is a series of finger-like mesas with valleys in between, backed to the west by the Rampart Range of the Rocky Mountains and overlooking the plains to the east. The altitude ranges from approximately 6,200 to 7,400 feet within the site.

The main complex where the cadets live and attend classes contains the following buildings, several of which were named for famous Air Force leaders. The buildings are designed in contemporary architectural style, featuring glass, aluminum, steel, and white marble.



Vandenberg Hall (Cadet Dormitory) — All cadets are housed in this quarter-mile-long building, two cadets to a room. In addition to 1,320 rooms, the dormitory contains a cadet store, tailor shop, barber shop, class lounges, and cadet activities rooms.

Mitchell Hall (Cadet Dining Hall) — The dining hall, enclosed in glass on three sides, is large enough to seat the entire Cadet Wing. Cadets assemble in front of the dormitory and march to the dining hall in formation. Visitors at the Academy are permitted to watch the noon formation from the Court of Honor behind Harmon Hall.

Harmon Hall (Administration Building) — Offices of the Superintendent and his staff are located here on the west side of the cadet complex.

Fairchild Hall (Academic Building) — Cadet classes are conducted in this large building containing 168 classrooms, 45 science labs, 5 lecture halls, the Academy Library, a dispensary, and faculty offices. To the south of this building is an aeronautics laboratory.

Arnold Hall (Cadet Social Center) — Social activities for cadets are held in this building which includes a ballroom, a theater, and recreational rooms.

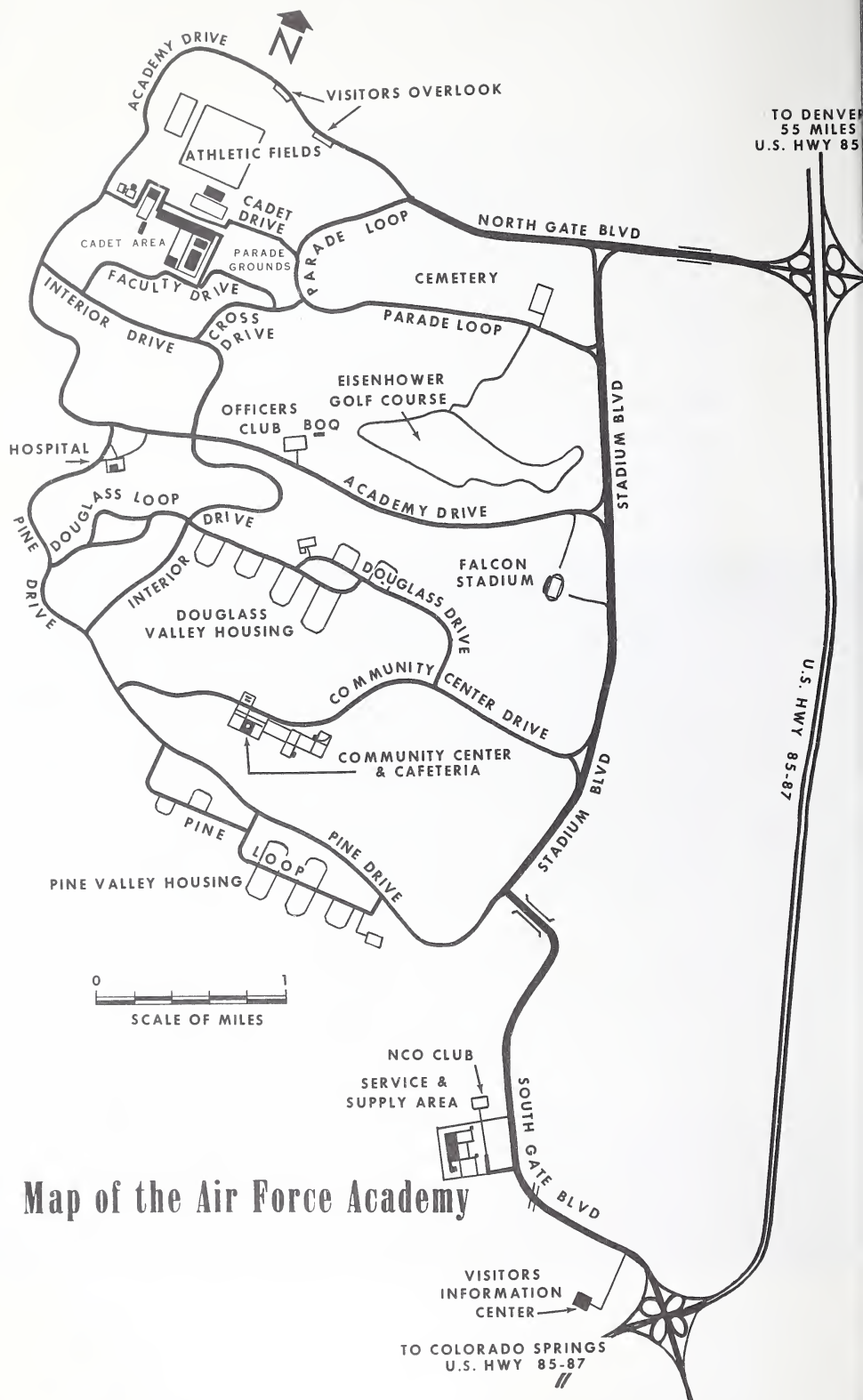
Cadet Chapel — The focal point of the area is the Cadet Chapel with 17 towering aluminum spires. The Chapel is divided into three areas: a Protestant section seating 900, a Catholic section seating 500, and a Jewish section seating 100.

Planetarium — Housed in a dome-shaped structure is the Planetarium used to teach celestial navigation and astronomy to cadets.

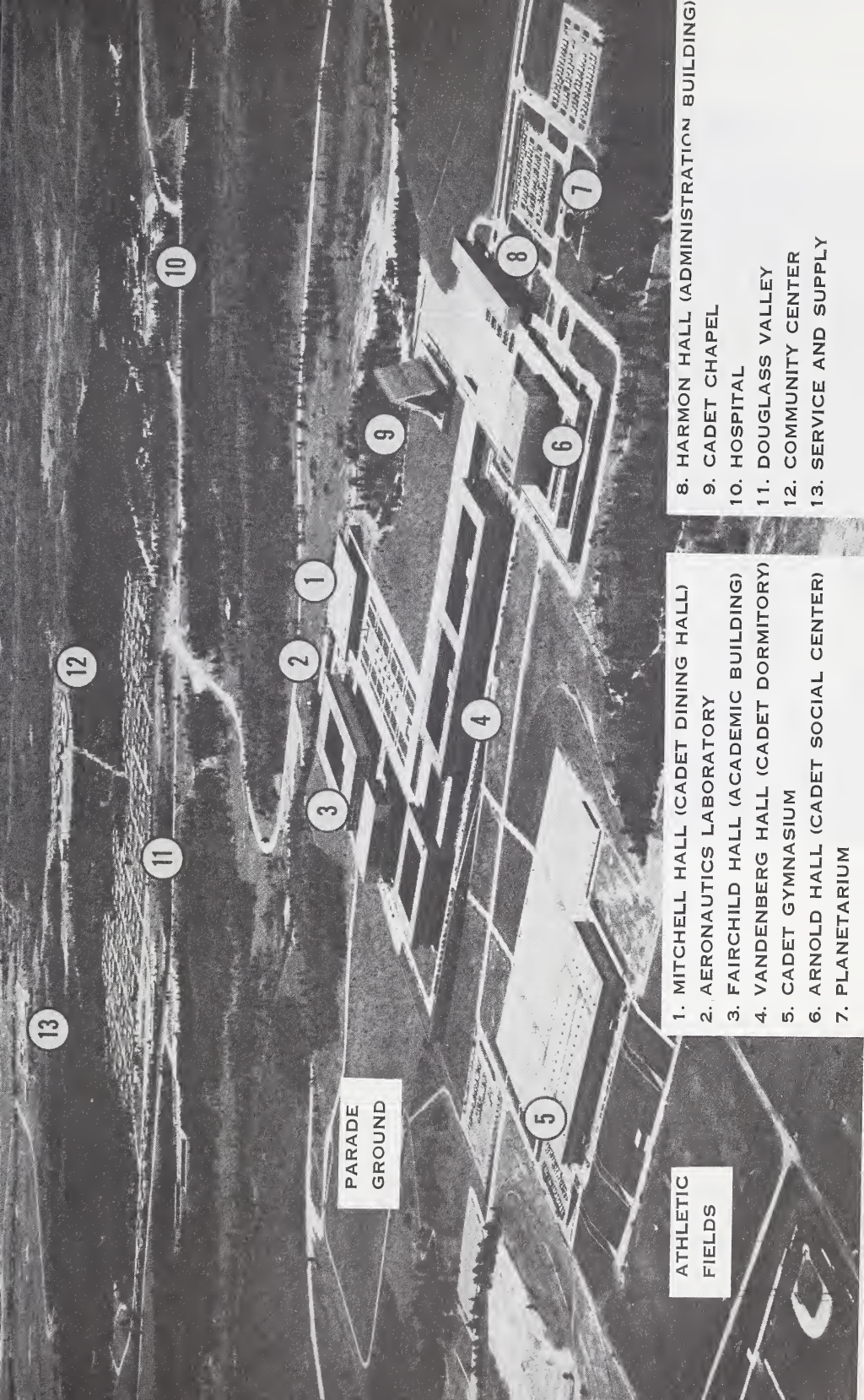
Cadet Gymnasium — The gymnasium contains two swimming pools, basketball and volleyball courts, boxing and wrestling rooms, squash courts, handball courts, a gymnastics room, and a rifle and pistol range. Surrounding the gymnasium are a number of athletic courts and fields.

Located in areas south of the cadet complex are two housing developments for officers and airmen, a shopping center, a hospital, the Academy Preparatory School, and a supply and service center. A 40,000-seat football stadium and an 18-hole golf course have been constructed with private funds donated to the Air Force Academy Foundation.

The public is invited to tour the Academy site at any time. A brochure with a map is given to every visiting car at the Academy gate to assist the tourists in locating the areas of interest.



Map of the Air Force Academy



PARADE
GROUND

ATHLETIC
FIELDS

1. MITCHELL HALL (CADET DINING HALL)
2. AERONAUTICS LABORATORY
3. FAIRCHILD HALL (ACADEMIC BUILDING)
4. VANDENBERG HALL (CADET DORMITORY)
5. CADET GYMNASIUM
6. ARNOLD HALL (CADET SOCIAL CENTER)
7. PLANETARIUM

8. HARMON HALL (ADMINISTRATION BUILDING)
9. CADET CHAPEL
10. HOSPITAL
11. DOUGLASS VALLEY
12. COMMUNITY CENTER
13. SERVICE AND SUPPLY

ADMISSIONS



IMPORTANT DATES

	1964	1965
Application and Nomination Period	1 June	thru 31 January
Air Force Examinations	December	thru March
College Board Tests (regular dates)	5 December	9 January 6 March
College Board Tests (make-up date)		20 March
Cadet Class Selected		May
Cadet Class Enters		28 June

Registrar
Col. Virgil J. O'Connor

*Counselors, prospective candidates or parents
who have questions not answered by the
information in this catalog may write to:*

REGISTRAR
United States Air Force Academy
Colorado



Eligibility Requirements

To be eligible for a cadet appointment to the class entering the Academy on 28 June 1965, a young man must meet the following basic requirements:

Age

He must be at least 17 and not have passed his 22nd birthday on 1 July 1965.

Citizenship

He must be a citizen of the United States.

Character

He must have good moral character.

Marital Status

He must be unmarried and never have been married. (Any cadet who marries will be discharged from the Academy.)

Medical Standards

He must be in good physical condition. (The applicant is urged to see his private doctor and dentist for a preliminary examination, using the disqualifying defects on pages 37-40 of the catalog as a guide.)

**Authorized Strength of the Air Force
Academy Cadet Wing**

New Congressional legislation provides for an increase in authorized strength at the Air Force, Military and Naval academies to a uniform total of 4,417 cadets. The Air Force Academy will increase its strength gradually, beginning with the class entering in June 1964. Cumulative appointments are the total number available to each nominating authority. Approximately one-fourth of these will enter each year. All other appointments are filled annually.

<i>Source of Nomination</i>	<i>Total Authorized Appointments</i>	<i>Allocated Appointments for 1965</i>
CUMULATIVE		
100 United States Senators (5 each)	500	165
435 United States Representatives (5 each)	2,175	705
Vice-President	5	2
District of Columbia	5	2
Puerto Rico	6	1
Canal Zone	1	1
Guam, Virgin Islands, American Samoa	1	0
Sons of Deceased Veterans	40	12
Allied Students		
Republic of the Philippines	4	1
Allied Students American Republics	20	2
ANNUAL		
Presidential	75	27
Regular Components	85	27
Reserve Components	85	27
Honor Military and Naval Schools and AFROTC	20	13
Qualified Alternates	150	*
Sons of Medal of Honor Winners	No Limit	No Limit
Total		985

*Qualified Alternates may be selected as required to bring the entering class to planned strength.

Definition of Terms

Applicant — One who makes application to a Member of Congress or other nominating authority for appointment to the Air Force Academy.

Nomination — Submission to Air Force Headquarters of an applicant's name as a nominee for appointment consideration.

Candidate — A nominee whose name has been forwarded to the Academy Director of Admissions and recorded as an official candidate.

Qualified Candidate — A candidate who meets the minimum requirements on the entrance examinations and fulfills the other criteria for appointment.

Appointment — Official designation of a qualified candidate selected for admission to the Academy, subject to approval of the Secretary of the Air Force and the President.

Cadet — A candidate who has accepted the appointment, has entered the Academy, and has been sworn in as a cadet.

Nominating Categories

A young man must obtain a nomination in a category authorized by law before he can take the entrance examinations and be considered for a cadet appointment. He should study the nominating categories to determine what kind or kinds of nomination he is eligible to seek. He may improve his chances of selection by obtaining a nomination in each category that he is qualified to enter. Only one series of entrance examinations is required regardless of the number of nominations an individual obtains.

In requesting a nomination, the applicant should follow the instructions given below on how to apply in each nominating category.

Congressional

Any resident of the 50 states who meets the Academy eligibility requirements may apply for a Congressional nomination. The applicant must make his request directly to a United States Senator from

his state or to the United States Representative from his Congressional district. A sample letter of application is included on page 42 of the catalog for guidance to the applicant.

Vice Presidential

The Vice President may nominate candidates from the United States at large. A letter requesting nomination should be addressed to the Vice President and should contain the same information required of a Congressional applicant.

District of Columbia

Residents of the District of Columbia should apply for an Academy nomination to one of the Commissioners of the District. A letter requesting nomination from a Commissioner should contain the same information required of a Congressional applicant.

The Canal Zone, The Commonwealth of Puerto Rico, American Samoa, Guam and The Virgin Islands

Residents of the Canal Zone, American Samoa, Guam and the Virgin Islands should apply to their respective Governor for nomination. Residents of Puerto Rico should apply to the Resident Commissioner of Puerto Rico. A letter of application to one of these nominating authorities should contain the same information required of a Congressional applicant.

Presidential

Vacancies allocated to the President of the United States have been reserved by him for sons of members of the Regular components of the armed services (Air Force, Army, Navy, Marine Corps, and Coast Guard). The eligibility requirements specify that the Regular component member must be on active duty, retired, or deceased, but not discharged before retirement or death. The son of a member of the Reserve component is not eligible in this category, unless his parent received a Reserve commission or warrant while a member of a Regular component, remained on continuous extended active duty, and retained the right to revert to Regular status.

In order for an adopted son to qualify as a Presidential candidate, he must have been legally adopted before his fifteenth birthday or proceedings must have been started before that time. Proof of adoption should be submitted with the application.

To request a nomination in this category, an individual (not his parent) must submit his application to the Director of Admissions, United States Air Force Academy, Colorado, not later than 30 November 1964. A sample letter of application is included on page 43 of the catalog.

Sons of Deceased Veterans

Vacancies are available for sons of deceased veterans who were killed in action or died of wounds, injuries, or disease incurred in active service during World War I, World War II (7 December 1941 thru 31 December 1946), or the Korean conflict (27 June 1950 thru 31 January 1955).

To request a nomination in this category, an individual (not his parent) must submit his application to the Director of Admissions, United States Air Force Academy, Colorado, not later than 30 November 1964. A sample letter of application is included on page 44 of the catalog.

***Regular Components*¹**

Vacancies are available for enlisted members of the Regular Air Force. Candidates must have completed one full year of active Regular service by 1 July of the year admitted to the Academy. A candidate must be an active member of the Regular component when appointed to the Academy, but his year of required service time does not have to be continuous.

***Reserve Components*¹**

Vacancies are allotted for enlisted members of the Air Force Reserve and the Air National Guard. Candidates must have com-

¹AFR 53-10, "Appointment to the United States Air Force Academy" gives complete directions for making application in this category. A prospective candidate must apply through his unit commander, who will process his application and forward it to the Director of Admissions for a determination of eligibility. The application form (DD Form 786) should be obtained through normal publications supply channels at the military organization where the individual is assigned. Applications for both Regular and Reserve components must be submitted prior to 30 November 1964.

pleted one full year of Reserve service by 1 July of the year admitted to the Academy. A candidate must be an active member of the Reserve component when appointed to the Academy, but his year of required service time does not have to be continuous.

Honor Military and Naval Schools

Vacancies are reserved for honor graduates of honor military and naval schools. The Departments of Air Force, Army, and Navy determine annually which schools will be designated as honor schools. Each school may nominate three candidates from its honor graduates or prospective honor graduates to compete for the cadet vacancies. Each nomination must contain a certification by the head of the institution that the candidate was an honor graduate or is a prospective honor graduate during a year that the institution was designated an honor school. The schools must submit their nominations to the Director of Admissions, United States Air Force Academy, Colorado, before 31 January 1965.

AFROTC Units

Only students in the Air Force Reserve Officer Training Corps units at the various colleges and universities are eligible to apply for AFROTC appointments. Students should apply to their professor of air science to request a nomination.

Sons of Congressional Medal of Honor Winners

The son of a Congressional Medal of Honor winner who served in any branch of the armed services may apply for a nomination in this category. If an applicant meets the eligibility criteria and qualifies on the entrance examinations, he will be admitted to the Academy. Vacancies are not limited in this category.

An applicant must write to the Director of Admissions, United States Air Force Academy, Colorado, requesting a nomination in this category. The letter must be submitted prior to 30 November 1964 and must include the following:

1. Full name, address, and date of birth.
2. Date of high school graduation.
3. Rank, service number, organization, and station, if a member of the military service.
4. Full name, rank, service number, and branch of service of the parent to whom the Medal of Honor was awarded.

Qualified Alternate Candidates

When necessary, the Air Force Academy Board may recommend qualified alternate candidates for appointment in whatever number may be required to bring the Cadet Wing to its authorized strength. Thus a young man nominated by a Member of Congress, but not appointed to fill his district vacancy, may still be considered on a competitive basis for the Academy if he is qualified. All qualified alternate candidates will be considered and no application by the individual is necessary.

Allied Students

The Academy is authorized to provide instruction to as many as 20 young men at one time from the American Republics other than the United States. Not more than three students from any one republic may receive instruction at the same time. In addition, the President of the Republic of the Philippines may fill one vacancy in each entering class. To apply for an Academy nomination, a young man should write to the Government of his own country, not to the Academy or other United States Government offices. An applicant's letter to his Government should contain complete particulars about his background. The letter should be submitted at least a year prior to the time of desired admission to the Academy. *Allied students must be able to read, write, and speak English proficiently in addition to meeting the eligibility requirements established for all Academy candidates.* With the exception of the American Republics and the Philippines, a student from a foreign country may not be admitted to the Air Force Academy unless he has received specific authorization by legislation of the United States Congress.

Nominating Methods

Congressional

A Member of Congress may choose between two methods of nomination as follows:

1. Principal Alternate Method

He may nominate one principal candidate and five alternate candidates listed in order of his preference. If the principal candidate meets the eligibility criteria and qualifies on the entrance examinations, he will be offered the appointment. If the principal does not meet the minimum requirements, the next designated alternate candidate who qualifies will be chosen.

2. Competitive Method

He may nominate six candidates and authorize the Air Force Academy to select his best qualified candidate. A composite score will be determined for each qualified candidate. The composite score will include all entrance examination scores, ratings on previous academic achievement and extracurricular activities, and a rating based primarily upon the recommendations of school principals and teachers. The candidate having the highest composite score will be offered the appointment.

Other Categories

The choice between the principal-alternate method and the competitive method is also available to the Vice President of the United States, the Resident Commissioner of Puerto Rico, the Governor of the Canal Zone, and the Commissioners of the District of Columbia. Each nominating authority may name six candidates to be considered for each vacancy which becomes available during a year.

The Governors of American Samoa, Guam, and the Virgin Islands may each nominate four candidates. These twelve candidates will be considered on a competitive basis for any existing vacancy in this category.

Candidates will be selected for appointment on a competitive basis from nominees entered in the following categories: Presidential, Sons of Deceased Veterans, Regular and Reserve Components, and Honor Military and Naval Schools and AFROTC. Factors considered in the competition are all entrance examination scores, previous

academic achievement, extracurricular activities, and recommendations of school principals and teachers. There is no limit on the number of eligible candidates who may compete in the Presidential and Sons of Deceased Veterans categories. Regular and Reserve nominations are limited to three for each vacancy. Each honor military and naval school may name three candidates.

The Son of a Congressional Medal of Honor Winner will be nominated upon application to the Academy. He will be offered an appointment provided he qualifies on the entrance requirements.

Nominating Schedule

A young man who wants to enter the Academy upon graduation from high school must apply for nomination well in advance of admission. If seeking a Congressional nomination, it is particularly important to apply early, preferably during the spring of the junior year in high school. Senators and Representatives may submit the names of their nominees to the Academy any time between 1 June 1964 and 31 January 1965, for the class entering in June 1965. A majority of them will make their selections for nomination early in this period. A young man who waits until the fall or winter months to apply cannot be considered if the Member of Congress has already selected his quota of nominees.

Other nominating authorities must also submit nominations to the Academy between 1 June and 31 January. Individuals applying in service-connected categories must submit applications to the Academy Director of Admissions before 30 November.

Examinations

Congressional Screening

Most Senators and Representatives require their applicants to take a Civil Service examination as a measure of general knowledge. Ordinarily the examination is given to applicants in July and November. The Academy does not receive the results of this examination and does not advise prospective candidates on how to prepare for it. The Civil Service examination usually consists of questions pertaining to spatial relations, vocabulary and reading, and algebra. Any request for information regarding this examination should be directed to the Member of Congress.

Prior to choosing his nominees, a Member of Congress may authorize an Air Force medical examination for an applicant to determine his medical qualification. This examination will be considered a final Air Force Academy Qualifying Medical Examination if it is administered at one of the Air Force Academy Examining Centers between 1 July 1964 and the date of entrance to the Academy. A medical examination given at any military installation other than an Air Force Academy Examining Center, or which is given prior to 1 July 1964, will not be considered a final Qualifying Medical and will not be binding in any way upon the Air Force.

Medical and Physical Aptitude Examinations

The Air Force Academy Qualifying Medical Examination determines a candidate's medical status for admission to the Academy. Candidates who have not taken an Air Force medical examination are advised to consult a private physician for a medical check prior to taking the Qualifying Medical. The list of medical disqualification factors on pages 37-40 of the catalog should be used as a guide by the physician. This list, while not complete, will serve to identify applicants who are obviously disqualified or who have physical defects which may be remedied. Each candidate is advised to have all remediable defects corrected prior to taking the Qualifying Medical. The candidate should also see his dentist for a thorough examination. All decayed teeth revealed by visual or x-ray examination must be filled in order to qualify on the medical.

A candidate who does not meet the vision or height requirements may be considered for a waiver by the Academy. A waiver may be granted to a candidate whose records indicate outstanding academic or leadership aptitude and achievement. The decision to grant a waiver will be made by the Academy Board at the time of final selection in April and will be based upon the level of attainment on scored selection measures. *Requests for waivers are not required since consideration will be automatic.*

The Physical Aptitude Examination includes a series of exercises designed to measure strength, coordination, endurance, speed and agility. A list of specific test items is included on pages 40 and 41 of the catalog.

A candidate will be scheduled to take the Air Force Academy Qualifying Medical Examination and the Physical Aptitude Exami-

nation at the Air Force Academy and Aircrew Examining Center nearest to him. A candidate who has a Qualifying Medical Examination on file taken since 1 July 1964 will be required to take only the Physical Aptitude Examination.

The Director of Admissions will send an authorization letter to the candidate specifying the date and place to report for these examinations. Therefore, it is extremely important that a candidate notify the Director of Admissions immediately of any change of address. This applies to both his permanent home address and his temporary or school address. Failure to provide this information will result in considerable inconvenience to a candidate and may jeopardize his candidacy.

If the candidate cannot report at the time specified, he should write to the Director of Admissions requesting to be rescheduled. In his request the candidate should specify his first and second choices of preferable testing dates. All candidates will be contacted by the Examining Center concerning the time to report.

In the United States, Air Force medical and physical aptitude examinations will be scheduled on 7 and 14 December 1964, and in 1965 on 25 January; 1, 8, 15, and 22 February; and 1, 8, 15, and 22 March. Testing overseas will be scheduled on 7 December 1964; 11 January and 8 March 1965.

A candidate living in a remote area overseas may not be able to take the College Board tests in his home community. In this case, the candidate should register for the College Board tests at a location nearest to the Examining Center where he will take his medical and physical aptitude examinations. These examinations will be administered near three College Board testing dates so that a candidate will be able to complete all tests during one trip. The College Board tests will be held on Saturday, 5 December, 9 January, and 6 March, previous to the Air Force examinations on Monday, 7 December, 11 January, and 8 March.

A list of Examining Centers is located on pages 35 and 36 of the catalog. Travel expenses to the Examining Center must be paid by the candidate, unless he is a member of the armed services on active duty. Meals and living accommodations while at the Center will be provided at a nominal cost to the candidate. Approximately two days are required to complete the Qualifying Medical Examination and the Physical Aptitude Examination.

College Entrance Examination Board Tests

A candidate will be required to take the following College Entrance Examination Board tests. (No substitutes can be made for item 1 through item 4 listed below.)

Scholastic Aptitude Test

1. Verbal Section
2. Mathematics Section

Achievement Tests

3. Level I (Standard) Mathematics or Level II (Intensive) Mathematics. (Select one — Level I recommended for candidates without advanced high school mathematics.)
4. English Composition
5. Any one additional achievement test of the candidate's choice. (It may be any other test offered by the College Board.)

The Board publishes descriptive booklets entitled *A Description of the College Board Scholastic Aptitude Test* and *A Description of the College Board Achievement Tests*. Most secondary schools have a supply of these booklets. If a candidate is unable to obtain copies at his school, he may write to the nearest College Board office and request that the booklets be sent to him. (See next footnote for address.) There is no charge for the booklets. They describe all tests given during the current school year.

The College Entrance Examination Board will schedule the candidate to take the tests at a College Board center which the candidate chooses from a list included in the bulletin of information. The center may be located within the candidate's community or usually not more than 75 miles from his home.

The regular College Board testing dates for Academy candidates are 5 December 1964, 9 January 1965, and 6 March 1965. Candidates are encouraged to take the tests on one of those dates. If circumstances arise which make it impossible for a candidate to take the tests on any of those dates, he may submit a request to be scheduled on the make-up date of 20 March, the last possible time to take the tests. A letter containing his reason for requesting the make-up date should be sent to the Director of Admissions, United States Air Force Academy, Colorado.

The College Board tests on 20 March will be given only at Air Force Examining Centers. This means that a candidate might be scheduled to take the tests at a center which is a considerable distance from his home. Therefore, each candidate should take the tests on one of the other dates if at all possible.

If a candidate has taken the College Board tests during the current school year, the scores he achieved will be accepted by the Academy, provided he writes the College Entrance Examination Board and asks that his scores be forwarded to the Director of Admissions.¹ However, a candidate is encouraged to take the tests more than once since he may improve on his previous scores. In the event he does take the tests more than once, each time he registers he *must* request that all of his scores be furnished by the College Board to the Air Force Academy. Only scores of tests taken during the current testing cycle will be considered.

The fee for one administration of the College Board tests will be paid by the Department of the Air Force. A free test voucher will be forwarded to the candidate along with his registration card for the College Board tests which is included with the bulletin of information. The candidate must mail both the test voucher and the registration card to the College Entrance Examination Board.

Prior Academic Record

In addition to his test scores, the Academy considers a candidate's prior academic record in judging his qualifications for a cadet appointment. His high school rank-in-class is the principal measure of academic achievement. The majority of young men appointed to the Academy rank in the top quarter of their graduating classes. Experience has shown that a candidate graduating in the lower sixty percent of his high school class does not have a reasonable chance of completing the academic curriculum of the Academy. A candidate with an unsatisfactory record of college performance will not be considered for an Academy appointment.

¹To request the College Board descriptive booklets or previous test scores the candidates should write to the College Entrance Examination Board either at Box 592, Princeton, N. J. 08541, or Box 1025, Berkeley, Calif. 94704. Candidates who live in Montana, Wyoming, Colorado, New Mexico and states west should write to the California office; others should write the New Jersey office.

Leadership Potential

A candidate's leadership potential is considered an important part of his qualifications. This potential is evaluated from his record of participation and distinction in high school extracurricular activities and by the recommendations of school counselors and teachers.

General Instructions

Previous Candidates

A physically qualified candidate who failed to receive an appointment in a previous year may become a candidate again by obtaining a new nomination from an appropriate authority. Application procedures in all nominating categories are the same as for a new candidate. *Previous candidates will be required to complete all entrance examinations.* They will receive special instructions regarding forms to be submitted.

Assistance from Liaison Officers

A group of Air Force Reserve officers not on active duty, who are located in communities throughout the United States, act in an official capacity as Liaison Officers for the Academy. It is the duty of a Liaison Officer to provide information to young men and their parents concerning admissions procedures and cadet life. A prospective candidate who desires to talk with the Liaison Officer nearest to him may be able to obtain his name and address from the guidance counselor at his high school. If it is not available, he may request this information by writing to the Liaison Officer Coordinator in his area. A list of Coordinators is included on pages 169-172 of the Personnel Directory in the back of the catalog.

Documentary Evidence

Birth Certificate — A candidate must submit a copy of his legal birth certificate to the Director of Admissions as soon as possible. Baptismal or hospital certificates are not acceptable. An authenticated true copy of the original record of birth will be acceptable.

Name Changes — A candidate must use his correct legal name as it appears on his birth certificate. If he desires to use a different name, he must notify the Director of Admissions immediately and provide evidence of legal authority for the name he desires to use. Until the appropriate documents are received, his name will be entered in the records as it appears on his birth certificate. Should he be appointed a cadet, he will be sworn in under his birth certificate name unless acceptable documents are received to substantiate a name change.

For Minor Variations — A notarized statement by a candidate's parents or guardian will be sufficient legal authority to use a name only slightly different from the one on the birth certificate. The statement should explain the discrepancy and certify that the individual known by the two names is one and the same person. This procedure is acceptable for correcting a name that has been transposed or reversed (John Joseph Brown to Joseph John Brown, for example) or making a slight correction of spelling or for adding or deleting the suffixes "Jr," "II," or similar designation.

Naturalized Citizens — If a candidate received United States citizenship by naturalization, he must submit a notarized statement setting forth the certificate of citizenship number, court name and location, date of certificate, and the candidate's full name, place and date of birth as they appear on the certificate. The original naturalization certificate should not be sent to the Academy.

Claiming Citizenship Through Parent or Parents — If a candidate was born to United States citizens while outside of the United States, he must submit a notarized statement setting forth his certificate of citizenship number, date of certificate, and the candidate's full name, place and date of birth as they appear on the certificate. The original certificate should not be sent to the Academy. (A certificate of citizenship may be secured from the Immigration and Naturalization Service. Completion is required of an "Application for Certificate of Citizenship," Form N-600.)

Admission Deposit and Travel Expenses

Each cadet will be requested to deposit \$300 when admitted to the Academy. A cadet who finds it impossible to provide the full sum may deposit a smaller amount. The deposit will be credited to the cadet's account to help pay initial costs of uniforms issued to him on a charge basis after admission. Failure to make a deposit is no bar to admission. However, a cadet with no deposit will have his initial uniform costs deducted on a pro rata basis from his monthly pay of \$111.15. In order to meet necessary expenses and participate in normal activities, he must be extremely economical with his pay until the initial uniform costs have been deducted from his account.

Except for a member of the armed forces who is provided transportation under joint travel regulations, each selected candidate is allowed six cents per mile for travel expenses to the Academy from his home in the United States or point of entry into the country. The allowance will be credited to his account following admission, unless he makes a specific request that the money be sent to his parents. If the allowance is credited to his account, the cadet may choose to apply the sum toward his entrance deposit.

Obligations of Cadet Appointment

Upon admission each cadet will be required to sign an agreement, with the consent of his parents or guardian if a minor, that he will fulfill these obligations:

1. He will complete the course of instruction at the Air Force Academy.
2. He will accept an appointment and serve as a commissioned officer in a Regular component of one of the armed services for five years.
3. If authorized to resign from the Regular component before the sixth anniversary of his graduation, he will serve as a commissioned officer in the Reserve component until the sixth anniversary.
4. If discharged from the Air Force Academy before graduation, he will accept transfer to the Air Force Reserve, in an appropriate enlisted grade, to complete the six-year service obligation. (Participation in a college ROTC program will apply toward the Reserve commitment.)

Each cadet is required to take the following Oath of Allegiance: "I, _____ (name), having been appointed an Air Force Cadet in the United States Air Force, do solemnly swear (or affirm) that I will support and defend the Constitution of the United States against all enemies, foreign and domestic; that I will bear true faith and allegiance to the same; that I take this obligation freely, without any mental reservation or purpose of evasion; and that I will well and faithfully discharge the duties of the office on which I am about to enter. So Help Me God."

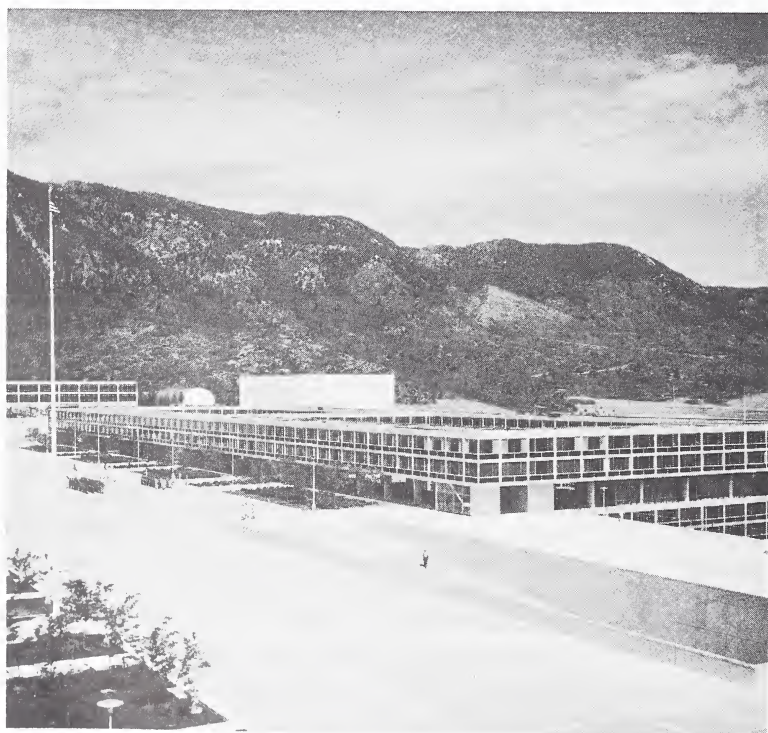
SUMMARY

Steps of Congressional Nomination and Appointment

1. An applicant must write to a United States Senator from his state or to the United States Representative from his Congressional district requesting nomination. He may follow the example on page 42, Format for a Congressional Nomination Request. The application should be submitted prior to 1 June, if possible, of the year preceding admission.
2. The Member of Congress will reply to the application. He may require mental or physical screening prior to making his nominations.
3. An applicant who is chosen for nomination will ordinarily receive a notice from his Senator or Representative prior to official notification by the Academy Director of Admissions. The Academy does not send official notification until after the Congressman has submitted the nomination. A Member of Congress may notify the applicant of his intention to nominate him a considerable time before he sends the official statement of nomination to the Academy.
4. As soon as possible following the notification, the Director of Admissions will send an instruction kit to the candidate which includes: (a) An authorization letter showing the time and place to report for the Medical and Physical Aptitude Examinations. (b) A test registration card and free test voucher which the candidate must mail to the College Entrance Examination Board to be scheduled for the College Board tests. (c) Forms which the candidate must submit. (d) A booklet of instructions to be

used as a guide in completing forms and taking the entrance examinations.

5. A candidate takes the Medical and Physical Aptitude Examinations at an Air Force Examining Center for two days as scheduled between December and March. A candidate takes the College Board tests on one of the scheduled dates: 5 December, 9 January, or 6 March, or with sufficient reason may postpone to 20 March.
6. Based upon their qualifications and examination scores, candidates are recommended for appointment by the Academy Board. The appointments are subject to approval of the Secretary of the Air Force and the President. Candidates selected for the cadet class will receive notification in May. The class enters on 28 June 1965.



U. S. AIR FORCE ACADEMY AND AIRCREW EXAMINING CENTERS

Alabama

Brookley AFB, Mobile
Maxwell AFB, Montgomery

Alaska

Elmendorf AFB, Anchorage

Arkansas

*Blythesville AFB, Blythesville
Little Rock AFB, Jacksonville

Arizona

Davis-Monthan AFB, Tucson
Williams AFB, Chandler

California

Beale AFB, Marysville
Castle AFB, Merced
Edwards AFB, Edwards
*George AFB, Victorville
*Hamilton AFB, Ignacio
March AFB, Riverside
Mather AFB, Sacramento
McClellan AFB, Sacramento
Norton AFB, San Bernardino
Travis AFB, Fairfield
*Vandenberg AFB, Lompoc

Colorado

USAF Academy
Lowry AFB, Denver

District of Columbia

Bolling AFB, Washington

Delaware

Dover AFB, Dover

Florida

*Eglin AFB, Valparaiso
*Homestead AFB, Homestead
MacDill AFB, Tampa
*Tyndall AFB, Panama City

Georgia

Hunter AFB, Savannah
Moody AFB, Valdosta
Robins AFB, Warner Robins
Turner AFB, Albany

Hawaii

Hickam AFB, Honolulu

Idaho

Mountain Home AFB,
Mountain Home

Illinois

Chanute AFB, Rantoul
Scott AFB, Belleville

Indiana

Bunker Hill AFB, Peru

Kansas

*Forbes AFB, Topeka
McConnell AFB, Wichita
*Schilling AFB, Salina

Louisiana

Barksdale AFB, Shreveport
*England AFB, Alexandria

Maine

Dow AFB, Bangor
Loring AFB, Limestone

Massachusetts

Otis AFB, Falmouth
Westover AFB, Chicopee Falls

Michigan

*Kincheloe AFB, Kincross
K. I. Sawyer AFB, Gwinn
Selfridge AFB, Mt. Clemens
Wurtsmith AFB, Oscoda

Mississippi

Columbus AFB, Columbus
Keesler AFB, Biloxi

Missouri

*Richards-Gebaur AFB,
Grandview
Whiteman AFB, Knob Noster

Montana

Glasgow AFB, Glasgow
Malmstrom AFB, Great Falls

Nebraska

*Lincoln AFB, Lincoln
Offutt AFB, Omaha

Nevada

Nellis AFB, Las Vegas
Stead AFB, Reno

New Hampshire

*Pease AFB, Portsmouth

New Jersey

McGuire AFB, Wrightstown

New Mexico

*Cannon AFB, Clovis

Holloman AFB, Alamogordo

*Kirtland AFB, Albuquerque

Walker AFB, Roswell

New York

Griffiss AFB, Rome

*Plattsburgh AFB, Plattsburgh

Stewart AFB, Newburgh

Suffolk County AFB,
Westhampton Beach, L. I.

North Carolina

Seymour Johnson AFB,
Goldsboro

North Dakota

Minot AFB, Minot

Ohio

Lockbourne AFB, Columbus
Wright-Patterson AFB, Dayton

Oklahoma

Altus AFB, Altus

Clinton-Sherman AFB,

Burns Flat

Tinker AFB, Oklahoma City

Oregon

Portland International
Airport, Portland

Pennsylvania

Olmsted AFB, Middletown

South Carolina

*Charleston AFB, Charleston

Shaw AFB, Sumter

South Dakota

Ellsworth AFB, Rapid City

Tennessee

Sewart AFB, Smyrna

Texas

*Amarillo AFB, Amarillo

*Bergstrom AFB, Austin

*Biggs AFB, El Paso

*Carswell AFB, Fort Worth

Dyess AFB, Abilene

James Connally AFB, Waco

*Lackland AFB, San Antonio

Laughlin AFB, Del Rio

Perrin AFB, Sherman

Randolph AFB, San Antonio

Reese AFB, Lubbock

Sheppard AFB, Wichita Falls

Webb AFB, Big Spring

Utah

Hill AFB, Ogden

Virginia

Langley AFB, Hampton

Washington

Fairchild AFB, Spokane

Larson AFB, Moses Lake

McChord AFB, Tacoma

Wisconsin

Truax Field, Madison

Wyoming

Francis E. Warren AFB,
Cheyenne

American Samoa

Department of Medical Services

Pago Pago, Tutuila

Canal Zone

Albrook AFB, Balboa

England

RAF West Ruislip, Middlesex

Germany

Wiesbaden AB, Wiesbaden

Guam

Andersen AFB, Guam

Japan

Tachikawa AB, Honshu

Newfoundland

Ernest Harmon AFB,

Stephenville

Philippine Islands

Clark AB, Luzon

Puerto Rico

Ramey AFB, Aguadilla

*All Examining Centers noted with an asterisk will administer medical examinations only.

MEDICAL DISQUALIFICATION FACTORS

Listed below are many of the factors for which Air Force Academy candidates are found medically disqualified. This list is not complete, but will serve as a guide to private physicians and dentists in medical screening examinations. A young man who has defects which are remediable, including dental defects, should have them corrected prior to taking the Air Force Academy Qualifying Medical Examination. An individual who has defects which are not remediable and would obviously disqualify him should not continue to seek a nomination or appointment to the Academy. Note page 26 of the catalog concerning the possibility of waivers for candidates who do not meet the visual or height requirements.

Visual Disqualifications

Unaided visual acuity less than 20/20 in either eye. Myopic refractive error exceeding $-.25$ in any one meridian or a hyperopic refractive error exceeding $+1.75$ diopters in any one meridian. Deficient color vision. Astigmatism greater than $\pm .75$. A cycloplegic examination is required of all applicants who take the final qualifying examination. Any tropia. Esophoria greater than 10 prism diopters, exophoria greater than 5 prism diopters. Hyperphoria greater than 1 prism diopter. A satisfactory red lens test should be performed.

Hearing Disqualifications

Hearing which is not 15/15 bilaterally or better by whispered voice test. Existing perforations of the tympanic membrane, regardless of etiology. Existing chronic ear disease is cause for rejection.

Heart and Vascular System

Systolic blood pressure greater than 139 and diastolic blood pressure greater than 89. Heart rate greater than 100 on repeated examination. All valvular diseases of the heart. Persistent bradycardia less than 50. History of rheumatic fever within five years. Varicose veins if severe or symptomatic. History of paroxysmal tachycardia.

Height Disqualifications

Under 5'6" and over 6'8". (Under 5'5" for 17- or 18-year olds.)

Weight Disqualifications

Any evidence of gross over or underweight.

Abdomen Disqualifications

Weakness of abdominal wall sufficient to interfere with function. Hernias of any type until corrected. Chronic diseases of abdominal viscera. Gastric or duodenal ulcer or history of same. Abdominal fistulae. History of splenectomy for reason other than trauma.

Lung and Chest Disqualifications

Tuberculosis active in past 5 years. Spontaneous pneumothorax within past 3 years or history of repeated episodes. Chronic bronchitis that will not respond to treatment. Bronchiectasis. Asthma of any degree since age 12. Congenital malformations that result in reduced chest capacity with associated diminution of respiratory reserve, absence of the clavicle, ununited fractures of the clavicle that would interfere with carrying military equipment. Coccidioidomycosis unless healed without residual.

Genitourinary Disqualifications

Varicocele if large or painful until corrected. Absence of one kidney. Chronic kidney disease. Infantile genitalia. Undescended testicle. Repeated attacks of renal calculi. Atrophy or absence of both testicles. Chronic orchitis or epididymitis. Persistent albuminuria of any type. Hypospadias or epispadias.

Extremities Disqualifications

Ununited fractures. Old joint fractures with evidence of arthritis. Pes planus with marked eversion and symptoms. Other conditions of the feet that would interfere with successful compliance with military routine. Chronic bone or joint disease. History of derangement of knee joint not corrected by surgery if associated with symptoms during past year. Varices below the knee if associated with ulcers or scars from previous ulceration. Total loss of either thumb. Loss of other digits sufficient to interfere with function and loss of either great toe.

Spine and Musculoskeletal Disqualifications

Scoliosis of more than one inch. Old vertebral fractures. Curvature of the spine of any degree in which there is noticeable deformity when the candidate is dressed. Spondylolisthesis. Gout. Deficient muscular development. Tuberculosis of spine, active or healed.

Skin Disqualifications

Chronic skin diseases such as severe acne or eczema or unsightly congenital markings. Pilonidal cyst if evidenced by presence of mass or discharging sinus. Extensive deep or adherent scars that interfere with movement or wearing of military equipment.

Neurologic Evaluations

Head injury resulting in prolonged unconsciousness or neurological diseases of any kind will be carefully evaluated. Migraine. Degenerative disorders. Residuals of infection (polio, meningitis, etc.). Convulsive disorders. Miscellaneous disorders, tics, spasms, spina bifida, if associated with neurological manifestations. Amnesia unless shorter than four hours in duration. History of unexplained unconsciousness.

Psychiatric Evaluations

Emotional instability. Psychosis or history of same. Anxiety reaction or dissociative reaction. Pathologic personality types. Other obsessive compulsive reactions or neurotic depressive reaction. Addiction to alcohol or drugs. Antisocial personality. Sexual deviation. Immaturity reaction if marked degree. Situational maladjustment. Multiple instances of somnambulism after 10 years. History of attempted suicide. Other disorders of emotion, behavior, thought, intelligence, or mood, difficult to define, may be disqualifying.

Nasal Disqualifications

Any congenital or acquired lesion which interferes with the functions of the nasopharynx or eustachian tubes. Allergic rhinitis. Nasal polyps. Deviation of the nasal septum resulting in greater than 50% obstruction to either airway or obstruction to drainage of any sinus. Sinusitis of any degree.

Dental Disqualifications

Less than eight serviceably opposed natural teeth in each of the upper and lower arches, exclusive of third molars, so positioned as to retain and adequately stabilize fixed bridges or partial dentures. Missing teeth, or grossly disfiguring spaces in anterior areas which adversely affect personal appearances. Severe malocclusion of the teeth or malrelation of the jaws sufficient to adversely affect the individual's health or appearance. Active orthodontic appliances whether attached or removable. Retainers are permissible after all treatment has been satisfactorily completed. Dental defects such as carious teeth, defective restorations, defective fixed or removable prosthesis until corrected. Diseases of the jaws such as cysts, tumors, severe periodontol conditions, abscessed teeth, which are irremediable or not easily remedied that are likely to incapacitate individual for satisfactory performance of military duty.

PHYSICAL APTITUDE EXAMINATION ITEMS

The items to be included in this examination will normally be selected from those listed below. The standard of performance indicated for each item is considered as the minimum performance to be achieved by each candidate. However, the examination will be graded on the basis of the total score. Therefore, if a passing score is achieved on the whole examination, failure to achieve a passing score on any single test will not cause disqualification.

1. *Modified basketball throw . . . 48 feet*

A throw for distance from a kneeling position using a regulation basketball.

2. *Broad jump for distance, standing . . . 6 feet 9 inches*

3. *Broad jump for distance, three in succession . . . 21½ feet*

Standing start with 3 successive broad jumps.

4. *Instep touch . . . 3 times*

From a hanging position on a horizontal bar, grasping bar with palms away from the face, bringing insteps to a position where they touch the bar. (Knees may be bent if desired.)

5. *Dodge run* . . . 26 seconds
A run through a maze placed on the gymnasium floor.
6. *Basketball passing* . . . 30 times
Using a two-handed chest pass, be able to hit a 6-inch square target from 20 feet away 30 times in succession.
7. *Hurdle run* . . . 40 seconds
A run through a maze of hurdles placed on the gymnasium floor.
8. *Medicine ball put* . . . 32 feet
A 6-pound medicine ball is put, using the same movement as required for a shotput.
9. *Pullups* . . . 3 times
Chinning oneself on a horizontal bar, grasping bar with palms away from face.
10. *Pushups* . . . 20 times
Standard pushups, starting from the leaning rest position.
11. *Rope climb* . . . 10½ feet
Climb a regulation gymnasium rope as high as possible in 7 seconds, using hands and feet or hands alone, starting from a standing position.
12. *Shuttle run* . . . 250 yards (52 seconds), 300 yards (65 seconds)
A shuttle run on a gymnasium floor between two turning blocks 25 yards apart.
13. *Vertical jump* . . . 17 inches
The difference between the height an individual can reach and the height he can jump and reach.
14. *Sit-ups* . . . 30 times in 2 minutes
Forearms must touch mat after each sit-up.

FORMAT FOR A CONGRESSIONAL NOMINATION REQUEST

Date

Honorable.....
House of Representatives
Washington, D. C. 20025

OR

Honorable.....
United States Senate
Washington, D. C. 20025

Dear Mr.....:

Dear Senator.....:

It is my desire to attend the Air Force Academy and to make the United States Air Force my career. I respectfully request that I be considered as one of your nominees for the class that enters the Academy in June 1965.

The following personal data is furnished for your information:

Name: (*As recorded on birth certificate.*)

Address: (*City, County, State.*)

Name of Parents:

Date of Birth:

High School Attended:

Date of High School Graduation:

Approximate Grade Average:

I have been active in high school extracurricular activities shown on the attached list.

I shall greatly appreciate your consideration of my request for a nomination to the Air Force Academy.

Sincerely,

Signature

FORMAT FOR A PRESIDENTIAL NOMINATION REQUEST

Date

Director of Admissions
USAF Academy, Colorado 80840

Dear Sir:

I request a nomination under the Presidential category for the class that enters the Academy in June 1965 and submit the following data:

Name: *(Give name as shown on birth certificate. If different from that which you use, attach a copy of court order, if applicable.)*

Address: *(Give permanent and temporary addresses.)*

Date and Place of Birth: *(Spell out month.)*

Date of High School Graduation:

If Member of Military: *(List rank, serial number, component, branch of service, and organizational address — do not use CMR or Box No.)*

If Previous Candidate: *(List year and candidate number.)*

Information on Parent

Name, Rank, Serial Number, Component and Branch of Service:

Organizational Address:

Retired or Deceased: *(Give date and attach copy of retirement orders or casualty report.)*

Officer Personnel: *(Attach Statement of Service prepared by personnel officer specifying Regular or Reserve status for all periods of service.)*

Enlisted Personnel: *(Attach statement prepared by personnel officer listing date of enlistment, date of enlistment expiration, component and branch of service.)*

Sincerely,

Signature

FORMAT FOR A SON OF DECEASED VETERAN NOMINATION REQUEST

Date

Director of Admissions
USAF Academy, Colorado 80840

Dear Sir:

I request a nomination under the Sons of Deceased Veterans category for the class that enters the Academy in June 1965 and submit the following data:

Name: *(Give name as shown on birth certificate. If different from that which you use, attach a copy of court order, if applicable.)*

Address: *(Give permanent and temporary addresses.)*

Date and Place of Birth: *(Spell out month.)*

Date of High School Graduation:

If Member of Military: *(List rank, serial number, component, branch of service, and organizational address — do not use CMR or Box No.)*

If Previous Candidate: *(List year and candidate number.)*

Information on Parent

Name, Rank, Serial Number, Regular or Reserve Component and Branch of Service:

Date and Place of Death:

Cause of Death:

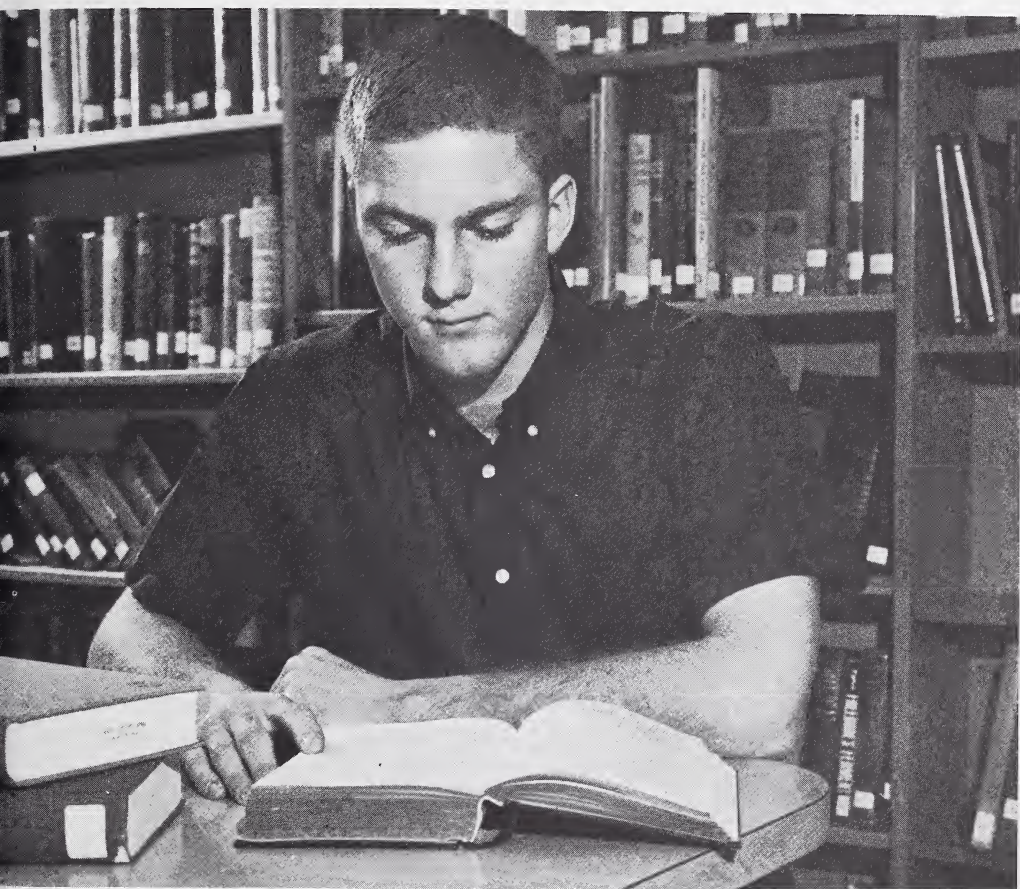
Veterans Administration XC Claim Number: *(Forwarding a copy of Death Certificate, preferably the Casualty Report, will expedite processing of your application.)*

Address of VA Office Where Case Is Filed:

Sincerely,

Signature

PREPARATION



Preparation Guide for Candidates

Previous Education

The majority of young men admitted to the Air Force Academy enter immediately after graduation from high school. Those who feel that they need additional academic preparation, or who were unable to obtain appointment immediately upon graduation, are encouraged to attend a civilian college or university while waiting to try for a subsequent class. There are many fine institutions of higher learning throughout the country. However, the Academy does not attempt to recommend specific schools for preparation.

Transfer Credit or Validation

College credits may be transferred to the Air Force Academy if the courses correspond to those in the Academy curriculum and an acceptable grade level has been achieved. Credit for college-level courses completed in secondary or preparatory schools may be given if the cadet can demonstrate an acceptable level of achievement in courses corresponding to those at the Academy. One way of demonstrating achievement is through the College Entrance Examination Board advanced placement tests.¹ The Academy Registrar, with approval of appropriate department heads, will consider advanced placement test scores. The College Board advanced placement courses provide an excellent means of preparing for the Academy curriculum.

Validation examinations are required of each new cadet in the subjects of English, chemistry, mathematics and history. They are given on an optional basis in mechanical drawing, economics, psychology, physics and other subjects in which cadets feel that they are proficient.

Young men who are preparing for the Academy should plan to transfer credit or validate courses whenever possible. Cadets who have done so will be able to complete their prescribed courses sooner than they would otherwise. In this way they will have more time to take electives, major in a subject area, and prepare for post-graduate study. It is anticipated that a number of Academy graduates will be selected for advanced study early in their careers.

No matter how many courses a cadet may validate or transfer, he must enter as a Fourth Classman and spend four years at the Academy.

Academic Preparation

The College Board tests measure a candidate's potential for success in the cadet academic program of liberal arts and science studies. For adequate academic preparation in high school, a young

¹The advanced placement tests are administered in May of each year at College Board examining centers throughout the country. Registration in advance, including payment of fee, is necessary. Information on registration procedures, fees, testing dates, and examining centers is contained in the bulletin, *Advanced Placement Examinations*, available without charge. This bulletin may be obtained by writing to the College Board Advanced Placement Examinations at one of the following addresses: Box 592, Princeton, N.J. 08541, or Box 1025, Berkeley, Calif. 94704.

man should definitely take the following subjects and strive for above average grades in his class work:

English — 4 units

Intermediate Mathematics — 4 units (Studies should include first-year algebra, intermediate algebra, trigonometry, and plane geometry.)

The following subject areas are recommended as an additional background for the academic program. A prospective candidate should try to take as many courses as possible which embrace these areas in the sciences, social sciences, and humanities.

Sciences

Biology
General Science
Chemistry
Physics
Advanced Mathematics
Mechanical Drawing

Social Sciences and Humanities

Economics
American Government
American History
World History
World Geography
Psychology
Foreign Languages
Public Speaking

Typing is recommended in addition to the above high school courses. Typewriters are available to the cadets for typing themes and reports.

Each cadet at the Academy is required to take one foreign language, either German, Chinese, Spanish, French or Russian. A high school background in one of these languages is desirable but not mandatory. The student who has an opportunity to take a language in high school should select one language and take as many years of instruction in it as possible. Three years of instruction are considered desirable for the best preparation.

The Academy does not require specific school courses or credits for entrance. A candidate does not have to be a high school graduate to gain admittance. However, one who has not graduated from high school at the time of admission to the Academy may lack the proper background to accomplish the cadet program of education and training.

High school students preparing for the Academy must remain in the upper half of their high school class in grade average or they will not qualify for admission to the Academy without further

preparation in college or preparatory school. The Academy curriculum is on the level of difficulty with the nation's engineering schools. The proper academic background is essential, therefore, in order to complete the concentrated program of education.

It should be noted by young men interested in applying for the Academy that the curriculum is not designed to prepare a student for medicine, dentistry, law or theology. One who desires to enter such professions should not apply for appointment.

Physical Preparation

All young men who are preparing for the Academy should maintain a high degree of physical fitness through participation in sports and through proper care of health. There is a definite correlation between physical fitness and the ability to succeed in the Academy's program of cadet education and leadership training.

A physical aptitude examination is given to each candidate to measure his coordination, strength, and agility. Candidates may prepare for this examination by engaging regularly in vigorous physical activity.

A cadet's first two months at the Academy are devoted to a strenuous physical program of basic cadet training. Physical exertion is required from morning until night as the cadet goes through physical conditioning and military training. Those cadets who have conditioned themselves to the level required for vigorous athletic team sports will be better prepared to meet the physical demands. Each candidate is encouraged to practice strenuous conditioning exercises until many repetitions of the exercise can be accomplished without undue physical strain. Legs, arm and shoulder strength should receive special emphasis.

Leadership Preparation

All phases of the Academy curriculum are devoted to preparing the cadet for leadership in the Air Force. Active participation in high school extracurricular activities can provide valuable experience in preparing for positions of leadership responsibility.

Young men who desire to enter the Academy should participate in some extracurricular activities which develop leadership skills.

These may include both athletic and non-athletic activities. Some examples of leadership in extracurricular activities are as follows:

1. Presiding officers of classes, clubs or student government.
2. Athletic participation and achievement.
3. Meritorious awards in athletic or non-athletic activities.
4. Attaining Eagle Scout rank.
5. Officer rank in the Reserve Officer Training Corps.
6. Managerial offices such as editor of a school paper.
7. Participation in public speaking activities.
8. Participation and achievement in the Civil Air Patrol.

Preparatory Scholarships

Three non-profit agencies, the Falcon Foundation, the Gertrude Skelly Trust, and the General Henry H. Arnold Educational Fund, provide educational assistance programs to enable deserving young men to better qualify for admission to the Air Force Academy. These agencies have no official connection with the United States Air Force or the Air Force Academy. Neither do they have any connection with the Air Force Academy Foundation which raises funds to provide recreational and cultural facilities for the Academy.

The Falcon Foundation

The Falcon Foundation provides preparatory scholarships annually for highly motivated and qualified young men seeking admission to the Academy and a lifetime career in the Air Force. The scholarships are awarded through preparatory schools to a limited number of deserving young men who need financial assistance to achieve preparatory schooling.

The Foundation makes annual cash grants for these scholarships to specific preparatory schools in various parts of the nation. Application for scholarships and information concerning the schools must be made directly to the Falcon Foundation, Post Office Box 611, Dallas, Texas. Completed applications must be provided to the Foundation by 1 April each year.

The Gertrude Skelly Trust

The late Mrs. Gertrude Skelly of Tulsa, Oklahoma, wife of William G. Skelly, founder of the Skelly Oil Company, established

this trust fund. It is administered by two Trustees: Mr. Harold C. Stuart, president of KVOO Radio and Television and former Assistant Secretary of the Air Force, and Mr. Russell F. Hunt, Executive Vice President of the First National Bank and Trust Company, Tulsa.

Scholarships from this trust fund will be awarded only to sons, adopted sons or step-sons of active, retired, or deceased career members of the armed forces of the United States. A young man should not apply unless his father was or is a career member of the armed forces.

The applicant may indicate his choice of preparatory school, either on the high school or college level. He must apply for financial assistance before 1 May to enter school in September. Complete information on applications may be obtained by writing to The Gertrude Skelly Trust Fund, Box 1349, Tulsa, Oklahoma.

The General Henry H. Arnold Educational Fund

Sponsored by the Air Force Aid Society, this fund provides educational assistance to sons of Air Force personnel. Consideration is given, first, to sons of deceased Air Force and Army Air Forces personnel who died on active duty or in retired status and, second, to sons of other Air Force personnel.

Assistance is limited to college and preparatory schools beyond the high school level. The applicant may make his own choice of an accredited school. An application blank may be requested from: Director, Air Force Aid Society, National Headquarters, Washington, D. C. 20025. An application blank is not available at Aid Society sections on Air Force installations. The completed application, including qualifications and need for financial assistance, must be returned to the Air Force Aid Society not later than 1 April preceding the fall the applicant plans to enter college.

The Air Force Academy Preparatory School

The Air Force conducts a Preparatory School for selected members of the Regular and Reserve components of the armed forces. The school is located on the Academy site. Its purpose is

to provide intensive instruction to assist servicemen in preparing for the Academy entrance examinations on an equal basis with a civilian candidate who is still in high school or has recently been graduated. It also prepares the serviceman for the Academy course of instruction. The school begins in August and continues through May. Complete information concerning the Preparatory School is contained in a brochure available upon request from the Registrar, United States Air Force Academy, Colorado.

A member of any one of the armed services on extended active duty may apply for the Preparatory School through his unit commander. Details of application and eligibility are outlined in a joint Air Force, Army, and Navy regulation entitled "Air Force Academy Preparatory School." (Specific regulation numbers are AFR 53-14, AR 350-59, BUPERS INST. 1530.49A, and MCO 1530.5.) A request for assignment to Preparatory School should be submitted as soon as possible after 1 March. The application period closes on 30 June for members of the Regular components.

Members of the Air Force Reserve and Air National Guard not on extended active duty may also make application for Preparatory School. Applications should reach the Director of Admissions before 31 May. Air National Guardsmen who are selected must then be enlisted in the Air Force Reserve. From Reserve status, candidates will be called to extended active duty to attend the Preparatory School. Those who have not received basic training will be sent to Lackland Air Force Base, Texas, for this purpose.

Selection of students for the Preparatory School is accomplished by the Air Force Academy. Selection is based on the applicant's high school academic background, his extracurricular activities, the recommendation of his commanding officer, and the results of mental and physical screening examinations. Selection for the Preparatory School, or completion of the course, in no way guarantees the student an appointment to the Academy. The Preparatory School student must follow the same procedure for obtaining a nomination and competing for an appointment as any other member of the Regular or Reserve components.

SUMMARY OF THE PRESCRIBED CURRICULUM

In Semester Hours

1964-65

4th Class	Summer	3rd Class	Summer
Mil Tng 100	7½	Mil Tng 200	4
PE 110	2		
	<hr/> 9½		<i>Fall & Spring</i>
	<i>Fall & Spring</i>	Math 201-202	5½
Math 101-102	13½	Physics 211-212	5½
Chem 101-102	5½	Hist 202	3
Engl 101-102	5½	Area Hist	2½
Hist 111-112	5½	Econ 202	3
Geog 141	4	For Lang Sequence	9
Physiol 111	2½	Mech 221	2
Libr 101-102	0	Beh Sci 203	2½
Mil Tng 101-114	2¼	Pol Sci 201-202	5½
PE 101, 103, 105-106	3¼	Mil Tng 201, 215	1¼
	<hr/> 42	PE 201, 205-206	3
			<hr/> 42¾
2nd Class	Summer	1st Class	Summer
Mil Tng 300, 310	4	Mil Tng 400	3
		Airmanship 410	½
			<hr/> 3½
	<i>Fall & Spring</i>		<i>Fall & Spring</i>
Mech 331-332	6	Astro 401-402	5½
Elec Eng 321-322	5½	Aero 403-404	5½
Aero 303-304	5½	Elec Eng 421	2½
Econ 311	2½	Physics 401	3
English Sequence	5½	Engl 403-404	5½
Laboratory Option	2	Pol Sci 411-412	5½
Law 311-312	5½	Academic Option	5½
Beh Sci 302-303	3	Airmanship Option	2½
Mil Tng 301, 302, 311	3	Mil Tng 401-402	2
PE 301, 305-306	3	PE 401, 403, 405-406	3¼
	<hr/> 41½		<hr/> 40¾

TOTAL SEMESTER HOURS — 188

THE ACADEMY CURRICULUM

Accreditation

The Air Force Academy is recognized as an accredited institution of higher learning by the North Central Association of Colleges and Secondary Schools. In the fall of 1962, the Engineers' Council for Professional Development, composed of representatives of the major professional engineering societies, granted accreditation to the Major in Engineering Sciences. Cadets who complete the requirements for the major will earn an engineering degree entitled Bachelor of Science in Engineering Sciences.

Phases of the Curriculum

The Academy curriculum consists of a diversified range of courses to prepare the cadet for a broad scope of activity as an Air Force officer. The curriculum is divided into three phases of cadet education: the academic program supervised by the Dean of the Faculty, the leadership and military training supervised by the Commandant of Cadets, and physical education and athletics supervised by the Director of Athletics.

Prescribed Curriculum

Since the Academy has the same general educational objectives for all students, the framework of the curriculum is based on standardized or prescribed courses. A total of 188 semester hours is included in the four-year prescribed curriculum. This total is at least 35 hours greater than required for an undergraduate degree by most engineering schools and 60 hours above that of a liberal arts school. Careful organization of cadet time and utilization of the summer months for instruction make it possible for the Academy to provide the additional semester hours.

The semester hours are divided among the areas of instruction as follows: the academic program — $143\frac{1}{2}$; leadership and military training — 30; physical education and athletics — $14\frac{1}{2}$.

The academic year consists of the fall semester from late August through December and the spring semester from January through May. The summer term is from June until late August. Academic courses are usually accomplished during the fall and spring semesters. Physical education and military training are spread throughout the year.

Enrichment Program

Objectives

To allow for the wide variances in individual student abilities, preparation, and achievements, the Academy has developed a program of elective courses and major subjects beyond the prescribed curriculum known as the "Enrichment Program." The basic objective of the program is to challenge a cadet to advance academically as far and as fast as he can. It stimulates the student with extra ability and motivation to make the best possible use of his time and his mind. It recognizes and utilizes the previous college education a cadet may have had. And it broadens the fields of study open to a cadet and gives him the opportunity to concentrate in any of a number of areas of special interest.

Methods of Participation

A cadet may participate in the enrichment program in any or all of the following ways:

By Transfer Credit — Any cadet who has previous college education is required to have all transcripts submitted to the Academy Registrar. All candidates selected for admission will be notified to submit complete transcripts prior to reporting to the Academy. If records indicate an acceptable level of achievement in courses corresponding to those in the Academy curriculum, the Registrar may grant transfer credit, subject to approval of the heads of departments concerned. The cadet is exempt from taking the courses in which transfer credit is granted, but he must carry a normal course load by substituting courses with approximately the same semester-hours credit.

By Validation — A cadet who has completed college-level courses in a secondary or preparatory school, or has acquired extensive knowledge of a subject without a college-level course, may be given validation credit for corresponding courses in the Academy curriculum. The cadet must qualify either through grades achieved on validation examinations administered at the Academy or through scores achieved previously on the College Board Advanced Placement Examinations. For courses validated, the cadet must substitute courses with approximately the same semester-hours credit in order to carry a normal course load.

By Acceleration — Cadets with special preparation or above average capability may be selected to take one or more prescribed courses at an accelerated rate in order to free more time in their schedule for enrichment courses. The Departments of Mathematics, Chemistry, and English offer the majority of accelerated courses. Cadets who have made high scores on the College Entrance Examination Board Tests, the College Board advanced placement examinations, or advanced placement tests administered at the Academy may be eligible for accelerated courses. Also, cadets who have taken corresponding courses at other institutions but have not been awarded transfer credit may be eligible.

Extra Electives — A gifted cadet also has the opportunity to take extra elective courses above the prescribed semester-hour load each semester, provided he maintains above average academic grades in all prescribed courses.

Majors Program

Cadets who complete the prescribed Academy curriculum receive a Bachelor of Science degree without a major. Those who take sufficient enrichment courses in a subject area may receive a degree with a major. Majors are offered in five undergraduate areas: International Affairs, Management, Mathematics, Basic Sciences, and Engineering Sciences. Specific requirements for each of the majors are shown on pages 103-106 in the following chapter. Cadets who have the time and talent to take several enrichment courses are encouraged to plan a definite program leading to a major. However, there is no requirement that a cadet pursue a major in order to take enrichment courses.

Master's Degree Program

The enrichment program also includes graduate-level courses which may be applied toward a master's degree. Under cooperative arrangements between the Academy and certain civilian universities, selected cadets may earn master's degrees from these universities within seven months after their graduation from the Academy. Such master's degree programs are available at present in Astronautics and International Affairs. A program in Management is contemplated in the near future. Cadets selected to attend the civilian universities must complete the requirements of the prescribed curriculum, a prerequisite undergraduate major, and the equivalent of

one-half year of graduate-level course work prior to graduation from the Academy. Cadets who perform in an outstanding manner in their major will be considered for participation in the cooperative master's degree programs. Requirements are shown on pages 107-109.

Option Courses

The Academy has adopted several variations in the prescribed curriculum to allow each cadet to pursue areas of his interest. These courses are referred to in the curriculum summary as laboratory option, academic option, and airmanship option.

Cadets majoring in a subject area will normally select the option course sequences which apply to their major. Cadets not working toward a major will choose from among several option sequences. The options are not designated in the catalog because there are many courses and variations involved.

As an example of an option sequence, a cadet who is interested in the social sciences will choose that division as his academic option. He will select an area of concentration in one of the following: Soviet Bloc, Latin America, Far East, Europe or America. If he chooses Latin America, for instance, he will take Spanish as his foreign language, including a Spanish enrichment course, an economics course and a political science course pertaining to that area. During his Second Class year, he will tour South American countries as his Field Trip of Overseas Areas. Option sequences are also offered in the Basic Sciences, Engineering Sciences, and Humanities.

The airmanship option allows each cadet to choose between additional instruction in navigation, designed as motivation toward a flying career, or a seminar course in military history.

Grading

The quality of a cadet's performance in any academic course is reported by means of letter grades. These grades denote character of work and are assigned grade points as follows:

<i>Grade</i>	<i>Character</i>	<i>Grade Points</i>	<i>Per Semester Hour</i>
A	Excellent	4	
B	Good	3	
C	Satisfactory	2	
D	Passing	1	
F	Failing	0	

Cadets are expected to maintain an academic average of C or better. While a D grade is passing for any one course, a C average in all courses is necessary to satisfy the requirements for graduation. Thus a cadet must maintain a cumulative grade-point average of 2.0.

The general policy of the Academy is to grade frequently on daily recitations, general reviews, and assignments prepared outside of class. A cadet is required to be prepared to participate and recite any time he is in class.

Progress reports are published regularly during the semester to inform cadets of their grades. Grade reports are published at the end of each semester by the Office of Cadet Records.

Deficiency and Dismissal

A cadet will be placed on academic probation if at any grade report he has a current or cumulative grade point average below 2.0 (C grade), or has an F grade in one or more courses. He will be counseled by faculty members and given the opportunity for extra instruction.

A cadet who fails only one course at the end of a semester, but has a satisfactory grade-point average, will be given a chance to remedy the grade through a turnout examination.

A cadet who fails a course or has a below minimum grade-point average is reported to the Academy Board for consideration of his case. Cases reported to the Academy Board usually receive one of the following recommendations: a specified probation period, turn-back to the next succeeding class, or dismissal from the Academy. Other cases coming before the Board are deficiencies in conduct (demerits) or in aptitude for commissioned service.

Cadet Achievement

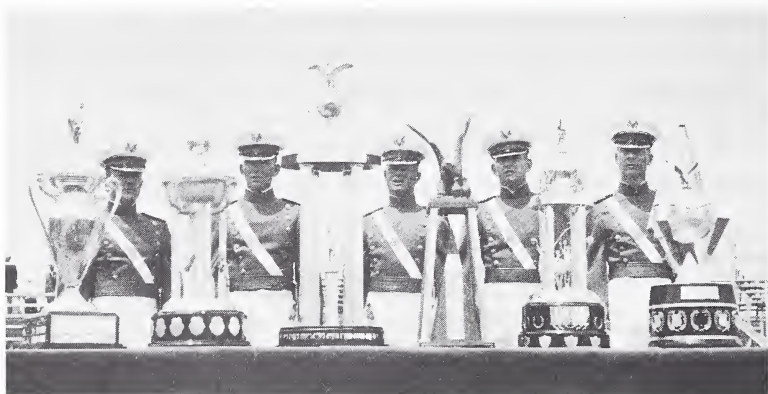
Cadets are recognized for achievement in academic courses, military performance, and athletic participation as follows:

1. Cadets who excel in academic courses are placed on the Dean's list at the end of each fall and spring semester. The list consists of cadets whose grade-point average is at least 3.0.
2. Cadets who excel in military performance are placed on the Commandant's List at the end of each fall and spring semester.

The list consists of the top 33 $\frac{1}{3}$ % in each class who have demonstrated the greatest cadet effectiveness.

3. Cadets who are on both the Dean's and Commandant's Lists are carried on the Superintendent's List denoting excellence in both academics and military performance.

Cadets whose names appear on either of these lists are granted additional privileges according to their class. They are recognized for this distinction by an insignia on the sleeve of the uniform. Cadets on the Dean's List wear a small silver star, those on the Commandant's List wear a silver wreath, and those on the Superintendent's List wear a silver star enclosed in a silver wreath.



Athletic awards are presented at the annual awards banquet during June Week. Individual and team trophies are given to winners of intramural competition. Cadets receive letters and numerals to be worn on athletic jackets for their participation and achievement in intercollegiate competition. Special awards are given for outstanding performance in varsity sports.

Teaching Methods

The Academy uses the discussion method of instruction in small classes, usually 12 to 16 cadets. The classroom atmosphere is relaxed with communication encouraged between the instructor and cadets. Extra instruction is provided for cadets who need assistance to improve their understanding of a subject. Programmed teaching

methods and closed circuit television facilities are new techniques being used in academic instruction.

The Faculty

The Academy maintains an all-military faculty who are qualified to motivate and educate the cadets for professional Air Force careers. Faculty members are required to have master's degrees in their fields and many of them have obtained doctorates. In addition to their academic qualifications, faculty members are chosen for their military backgrounds. A directory with the names of faculty members, their duty assignments, and their degrees is located in the back of the catalog. A majority of the faculty are Air Force officers. A few officers from the United States Army, Navy, and Marine Corps, and from air forces of allied nations serve in a liaison capacity.

Course Numbers

In the course listings that follow, prescribed and enrichment courses are shown by divisions and departments. Prescribed courses in the 100 series are designed for the Fourth Class (Freshman) level; the 200 series for the Third Class (Sophomore) level; the 300 series for the Second Class (Junior) level; the 400 series for the First Class (Senior) level; and the 500 series for the graduate level. Enrichment courses may be taken at any class level, provided the prerequisites are met.

Prescribed and enrichment courses are identified by the second digit of the course number. Prescribed course numbers have a second digit of 4 or less; enrichment course numbers have a second digit of 5 or above. The semester or term in which a prescribed course is primarily offered is indicated by the third digit of the course number as follows: course numbers ending in 0 are summer term courses, those ending in odd numbers are normally fall semester courses, and those ending in even numbers are normally spring semester courses.

Several courses are offered in both the fall and spring semesters. Those courses are so indicated in the descriptions. In some courses, the credit awarded may be $\frac{1}{2}$ semester hour greater for the spring than for the fall semester. The reason for this is that the spring semester is longer than the fall (21 weeks as compared with 17), and additional work may be completed during the spring.

THE ACADEMIC PROGRAM



Dean of the Faculty
Brig. Gen. Robert F. McDermott

Associate Dean for Academic Affairs
COL. J. V. G. WILSON

Associate Dean for Educational Services
COL. WINSTON C. FOWLER

The academic program provides a general undergraduate education with courses balanced among the liberal arts and sciences.



COURSES OF STUDY

The courses of study are conducted by departments within four major academic divisions: Basic Sciences, Engineering Sciences, Humanities, and Social Sciences. The prescribed and enrichment course offerings are listed under each department. In order to be a candidate for a degree, each prescribed course must be completed, or else credit must be received through transfer or validation as explained in the preceding chapter under the Enrichment Program. Enrichment courses may be taken as electives, with semester hours either applying toward a degree major or providing extra credit.

Division of Basic Sciences

Division Chairman: Col. William T. Woodyard

Division Executive: Capt. James E. Banks

The Division of Basic Sciences offers courses in mathematics, chemistry, physiology, biology, and physics. The cadet develops knowledge and skills in basic subjects which are necessary to an understanding of science in the modern world, with particular attention to the background necessary for an Air Force career. Laboratory work develops the scientific method of obtaining results through accurate observation, critical thinking, and logical reasoning.

Included in the prescribed curriculum are 35 semester hours in the Basic Sciences Division. Through the completion of selected enrichment courses offered by this Division, a cadet may obtain a Major in Basic Sciences or a Major in Mathematics. A Major in Basic Sciences is recommended for cadets who contemplate future graduate work in chemistry, physiology or physics. A Major in Mathematics is recommended for future graduate work in mathematics. Either major will be helpful in future specialization in any scientific area.

Department of Chemistry

Professor and Head of Department: Col. William T. Woodyard

Associate Professors: Col. Brundin; Majs. Clark, Goodner; Capt. Banks

Assistant Professors: Majs. Hammock, King, Walford; Capts. Arnet, Bartleson, Massengale, Newton, Schock, Seegmiller, Smith, VanVonderen

Instructors: Lt. Col. Horne; Maj. Cooper; Capts. Jennings, Lindstrom, Norton, Quick, Schlatter, Tomaskovic, Ward; 2d. Lt. Klausutis

Prescribed Courses

Chem 101-102. General Chemistry: Kinetic- molecular theory, periodic law, properties of solutions, chemical formulas, acid-base theory, chemical reactions, chemical equilibria, the concepts of equivalent weights and the combining capacities of the elements. An introduction to the field of organic, nuclear, and analytical chemistry. Lab. Semester Hours: Chem 101 — 2½, fall; Chem 102 — 3, spring.

Physiol 111. Human Physiology: An introduction to the principles of physiology on both a cellular and organ-system level with references to the basic principles of living systems, cellular biochemistry, aero and space physiology. Semester Hours: 2½, fall or spring.

Enrichment Courses

Chem 151. Accelerated General Chemistry: Kinetic-molecular theory, periodic law, properties of solutions, chemical formulas, acid-base theory, chemical reactions, chemical equilibria, the concepts of equivalent weights, and the combining capacities of the elements. Students

are chosen by the department on the basis of examination scores. Successful completion fulfills the requirements for Chem 101-102. Semester Hours: 2½ plus 3 validation credit, fall.

Chem 253. Organic Chemistry I: Classification and naming of organic compounds, general reactions to aliphatic organic compounds, and introduction to the study of stereochemistry and to reaction mechanisms. Prerequisites: Chem 101-102. An associated laboratory course, Chem 263, is recommended but optional. Semester Hours: 2½, fall.

Chem 254. Organic Chemistry II: General reactions to aromatic organic compounds, introduction to the study of polynuclear hydrocarbons, and reaction mechanisms for aliphatic and aromatic compounds. Prerequisites: Chem 253. An associated laboratory course, Chem 264, is recommended but optional. Semester Hours: 3, spring.

Chem 263. Organic Chemistry I Laboratory: Laboratory experiments in preparation, purification, and characterization of typical organic compounds. Prerequisite: Must have taken or currently be enrolled in Chem 253. Semester Hours: 1½, fall.

Chem 264. Organic Chemistry II Laboratory: Laboratory experiments in qualitative analysis of organic compounds, and an introduction to instrumental analysis. Prerequisite: Must have taken or currently be enrolled in Chem. 254. Semester Hours: 2, spring.

Chem. 351. Physical Chemistry I: Chemical thermodynamics and equilibria, properties of gases and liquids, solutions, and phase equilibria. Prerequisites: Chem 101-102, Math 201. An associated laboratory course, Chem 361, is recommended but optional. Semester Hours: 2½, fall.

Chem 352. Physical Chemistry II: Chemical kinetics, electrochemistry, ionic equilibria, and introduction to quantum theory, molecular structure, and spectroscopy. Prerequisites: Chem. 351. An associated laboratory course, Chem 362, is recommended but optional. Semester Hours: 3, spring.

Chem 353. Theoretical Inorganic Chemistry: Atomic structure to include build-up of the periodic table and introduction to fundamental wave mechanics. Chemical bonding including elementary wave mechanics for covalent compounds, hybridization, ionic crystals and coordination compounds. Prerequisites: Chem 102 or equivalent;

completion of or concurrent enrollment in Math 202, Phys 212 or equivalent. Semester Hours: 3, spring.

Biol 360. Comparative Vertebrate Anatomy: A classroom and laboratory study of the anatomy of vertebrate animals. Anatomical structures are compared with emphasis on similarities of function. Elements of classification, taxonomy, embryology and development as they affect structures are studied. Included are introductory studies of organ systems and germ layer development. Prerequisites: Physiol 111 or equivalent and departmental approval. Semester Hours: 4, spring.

Biol 361. Comparative Vertebrate Embryology: A classroom and laboratory comparative study of the development of embryos of vertebrate animals. Detailed study of the fate and function of the germ cell layers. Prerequisites: Physiol 111 or equivalent and departmental approval; Biol 360 desirable. Semester Hours: 4, fall.

Biol 362. Advanced General Biology: A comprehensive classroom and laboratory study of the plant and animal kingdoms. Includes a detailed analysis of morphology, function, genetics, and development with consideration of taxonomy and anatomy in comparison of organ systems. Prerequisites: Physiol 111 or equivalent and departmental approval. Semester Hours: 4, spring.

Chem 361. Physical Chemistry I Laboratory: Laboratory experiments in molecular weight determinations, thermodynamic function determinations, and physical and chemical equilibria. Prerequisite: Must have taken or currently be enrolled in Chem 351. Semester Hours: 1½, fall.

Chem 362. Physical Chemistry II Laboratory: Laboratory experiments in electrochemistry, determination of reaction rate constants and ionic equilibrium constants, and the use of modern instrumentation. Prerequisite: Must have taken or currently be enrolled in Chem 352. Semester Hours: 2, spring.

Physiol 451. Introduction to Space Physiology: Introduction to principles of physiology as applied to man in space. Emphasis on biological effects of space environment conditions. A brief introduction to the historical development of space travel and rocketry. Prerequisites: Chem 102, Physiol 111 and Math 102; Phys 212 and 401 desirable but not required. Semester Hours: 3, spring.

Chem 474. Research: Individual research under the direction of a member of the faculty. Prerequisites: First or Second Class standing and permission of the department. Semester Hours: 2 to 5, as arranged, fall or spring.

Chem 551. Molecular Structure: The principles of wave mechanics with applications to chemical bonding and molecular structure. Electronic states of atoms and molecules, directed valency, polyatomic molecules, conjugated and aromatic systems, time dependent wave equations, molecular spectroscopy. Prerequisite: Chem 352 or 353. Semester Hours: 2½, fall.

Department of Mathematics

Professor and Head of Department: Col. John W. Ault

Associate Professors: Lt. Cols. Hempstead, MacWherter, Moorhead; Majs. Arnold, Ryan, Stevenson; Capt. Eisenman

Assistant Professors: Majs. Anlian, Best, Erbschloe, Kirkman, Landers, Leland, Oesch, Robb, Rollins, Ross, Spencer, Steger; Capts. Harrison, Patton, Webb, Wethington; 1st. Lt. Rollinger

Instructors: Majs. Baird, Norby, Price, Thompson; Capts. Bauman, Brant, Clegg, Emley, Glass, Hawkins, Helton, Johnston, Krutz, Perkins, Platt, Sackschewsky, Schultz, Slezak, Stuart, Tindall, Yantis

Prescribed Courses

Math 101. College Algebra, Statistics, Trigonometry: Mathematical processes and applications related to the fundamentals of college algebra, plane and spherical trigonometry, statistics and use of the slide rule. Semester Hours: 6, fall.

Math 102. Analytic Geometry and Introduction to Calculus: Mathematical processes and applications related to the fundamentals of plane analytics and differential and integral calculus using algebraic and transcendental functions. Prerequisite: Math 101. Semester Hours: 7½, spring.

Math 201-202. Calculus and Introduction to Differential Equations: Differential and integral calculus of algebraic and transcendental functions, solid analytics, infinite series, partial differentiation, multiple integration, vector algebra, and an introduction to vector calcu-

lus and differential equations. Prerequisites: Math 102 for Math 201; Math 201 or equivalent for Math 202. Semester Hours: Math 201 — $2\frac{1}{2}$, fall; Math 202 — $2\frac{1}{2}$, fall or 3, spring.

Enrichment Courses

Math 151. Statistics: Fundamentals of descriptive and inductive statistical techniques including collection, organization, analysis, presentation and interpretation of numeral data, frequency distribu-



tions, correlation, index numbers, time series, and quality control. Applications to operations and systems analysis. Prerequisite: Math 101 or equivalent. Semester Hours: $2\frac{1}{2}$, fall or 3, spring.

Math 161. Calculus and Analytic Geometry: Covers the subjects listed under Mathematics 102 plus selected topics in statistics and spherical trigonometry. Successful completion fulfills requirement for Math 101-102. Prerequisite: permission of the department. Semester Hours: 6 plus 6 validation credit, fall.

Math 162. Calculus, Analytic Geometry and Introduction to Differential Equations: Covers the subjects listed under Math 201-202. Successful completion fulfills the requirement for Math 201-202. Prerequisite: Math 161 or permission of the department. Semester Hours: 6, fall or $7\frac{1}{2}$, spring.

Math 251. Differential Equations: The solution of ordinary differential equations with application. Emphasis on solution of linear equations by Laplace transform, series, numerical and related methods. Introduction to partial differential equations. Prerequisite: Math 202 or equivalent. Semester Hours: $2\frac{1}{2}$, fall or 3, spring.

Math 352. Digital Computer Programming and Beginning Numerical Analysis: General theory of stored-program computers and programming. Introduction to elementary numerical analysis. Practical applications through preparation and execution of programs on a digital computer. Prerequisites: Math 251 and permission of the department. Semester Hours: $2\frac{1}{2}$, fall or 3, spring.

Math 361. Matrix Vector Analysis: A blend of matrix algebra with vector analysis including review of vector algebra, relative derivatives and coriolis, del operations and transformation theorems, linear vector spaces, curvilinear coordinates and applications. Prerequisites: Math 251 and permission of the department. Semester Hours: $2\frac{1}{2}$, fall or 3, spring.

Math 455. Modern Algebra: An introduction to abstract algebra through topics covering the number system, rings, fields and groups, and related areas. Prerequisites: Math 251 and permission of the department. Semester Hours: 3, spring.

Math 456. Advanced Calculus: Selected topics from advanced calculus to include limits, ordinary and partial derivatives, proper and improper integrals, sequences and series. Prerequisites: Math 251 and permission of the department. Semester Hours: $2\frac{1}{2}$, fall.

Math 474. Research: Individual research under the direction of a member of the Mathematics faculty culminating in the preparation and defense of an expository paper at the First Class or first-year graduate level. Prerequisites: At least two mathematics courses at the 400 or 500 level and permission of the department. A written application for permission to enroll in the course must be submitted prior to pre-registration. Semester Hours: 2 to 5, as arranged, fall or spring.

Math 551. Numerical Analysis: Review of programming techniques, interpolating polynomials, numerical solution of linear systems and ordinary differential equations, and introduction to finite difference methods. Prerequisites: Math 352 and permission of the department. Semester Hours: 3, spring.

Math 553. Introduction to Complex Variables and Applications: Analytic functions, integrals, derivatives, power series, residues, and applications. Prerequisites: Math 251 and permission of the department. Semester Hours: 2½, fall.

Math 554. Fourier Series and Analytic Probability: Orthogonal expansions emphasizing Fourier series and an introduction to analytic probability. Prerequisites: Math 251 and permission of the department. Semester Hours: 3, spring.

Department of Physics

Professor and Head of Department: Lt. Col. Baker.

Associate Professor: Maj. Westfall.

Assistant Professors: Maj. Kelley; Capts. Carpenter, Denfeld, Doss, Freyer, Prater, Ware; 1st. Lt. Morrison

Instructors: Maj. Mione; Capts. Balogh, Goodwin, Hallisey, Henry, Jackson, Kronlund, Leech, Legate, Rose

Prescribed Courses

Phys 211. General Physics: Fundamental principles of kinematics, dynamics, and statics. Lab. Prerequisite: Math 102 or concurrent enrollment in Math 162. Semester Hours: 2½, fall or 3, spring.

Phys 212. General Physics: Fundamental principles of wave motion, sound, light, optics, electricity, and magnetism. Lab. Prerequisite: Phys 211. Semester Hours: 2½, fall or 3, spring.

Phys 401. Introduction to Modern Physics: Introduction to the fundamental concepts and experimental basis of modern physics. Topics include properties of atoms and nuclei, origin of spectra, fundamental particles, nuclear reactions, natural and artificial radioactivity, quantum theory, relativity, fission, and thermonuclear reactions. Major emphasis on analysis and solution of problems. Lab. Prerequisites: Phys 211-212 and Math 202. Semester Hours: 2½, fall or 3, spring.

Enrichment Courses

Phys 452. Principles of Modern Physics: Selected topics of modern atomic physics such as the theory of relativity, electron-photon interactions, elementary quantum theory, atomic structure, spectra, and introductory statistical mechanics. Applications of mathematical physics are emphasized. Spring semester includes a modern physics lab in conjunction with Phys 453. Prerequisites: Phys 212 and Math 202. Semester Hours: 2½, fall or 3, spring.

Phys 453. Principles of Nuclear Physics: Selected topics in nuclear physics such as radioactive decay, mass determinations, nuclear reactions, nuclear models, Q-values and binding energies, nuclear forces, models, fission and fusion, and accelerators. Spring semester includes a modern physics lab in conjunction with Phys 452. Prerequisite: Phys 452 or permission of the department. Semester Hours: 2½, fall or 3, spring.

Phys 454. Neutron Physics: An advanced undergraduate or first-year graduate course in the fundamental principles of neutron utilization. Topics include nuclear binding, neutron reactions, nuclear fission, thermal neutron characteristics, thermalization of fast neutrons, nuclear chain reaction, neutron diffusion, criticality developments, time and environmental dependence of chain reactions, radiation detection, and nuclear fusion. Emphasis on mathematical development and derivation. Prerequisites: Phys 453 and completed or enrolled in Math 251. Semester Hours: 2½, fall or 3, spring.

Physics 455. Advanced Topics in Physics: Selected topics from the field of theoretical and applied physics, i.e., quantum mechanics, plasma physics, solid-state, thermonuclear and fission reactor physics, and classical electrodynamics and mechanics. Prerequisites: Phys 453 and Math 251 or equivalents. Semester Hours: 2½, fall or 3, spring.

Phys 457. Quantum Mechanics: An introduction to the basic concepts of quantum mechanics. Topics include an introduction to Schrödinger's equation and its application to various problems, perturbation theory, and an introduction to the operator formulation of quantum mechanics. Prerequisites: Completed or enrolled in Phys 453 and approval of the department. Semester Hours: 2½, fall or 3, spring.

Phys 551. Theoretical Physics I: Selected topics in classical mechanics, kinetic theory, and statistical mechanics. Prerequisites: Phys

453, Math 361, and approval of the department. Semester Hours: 2½, fall.

Phys 552. Theoretical Physics II: Selected topics in classical electricity and magnetism, optics, and the wave theory of matter. Prerequisites: Phys 551 and approval of the department. Semester Hours: 3, spring.

Division of Engineering Sciences

Division Chairman: Col. Roger R. Bate

Division Executive: Maj. George E. Yale, Jr.

The Division of Engineering Sciences offers courses in aerodynamics, thermodynamics, astronautics, electrical engineering, mechanics, and civil engineering. These disciplines are essential to understanding the technology upon which aerospace power depends. Air Force applications of engineering sciences are emphasized so as to give each cadet a basic knowledge of modern weapon systems and an understanding of the problems associated with their design, development, and procurement. In laboratory work, the cadet gains ability to apply the scientific method to the solution of practical problems and the evaluation of experimental results.

Included in the prescribed curriculum are 35½ semester hours in the Engineering Sciences Division. Through the completion of selected enrichment courses offered by this Division, a cadet may obtain a Major in Engineering Sciences, accredited by the Engineers' Council for Professional Development. A Major in Engineering Sciences provides a background for Air Force engineering specialties in such fields as aeronautics and astronautics. The major prepares the cadet for future graduate study in engineering, including the master's program in astronautics offered by the Academy in cooperation with civilian universities.

Department of Aeronautics

Professor and Head of Department: Col. Gage H. Crocker

Associate Professors: Lt. Cols. Calhoun, Daley; Majs. Chrisinger, Yale; 1st. Lt. Norman

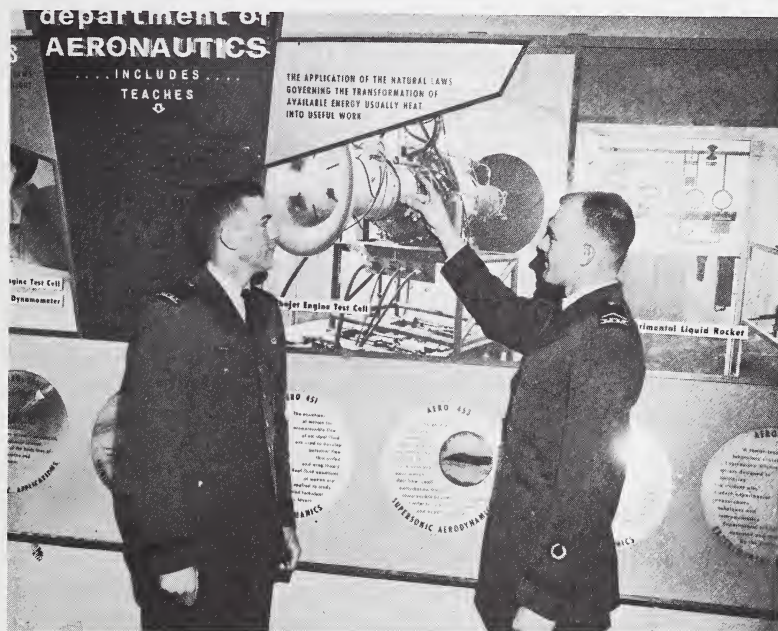
Assistant Professors: Majs. Bubb, Neyhart; Capts. Cole, Crim, Loeschner, Piper, Pollard, Russell, Welch; 1st. Lt. Hennrich

Instructors: Majs. Butler, Morinello; Capts. Bishop, Koestner, Pyne, Ross, Shaw, Stelpflug, Willes

Prescribed Courses

Aero 303. Fundamental Thermodynamics: Classical thermodynamics treating the various phenomena of energy, with particular reference to laws which govern the transformation of heat into useful work and power. Prerequisites: Completed or enrolled in Phys 212 and Math 202. Semester Hours: $2\frac{1}{2}$, fall.

Aero 304. Fundamental Aerodynamics: Concepts for analyzing fluid flow including conservation equations. Viscous effects and boundary



layer characteristics. Compressible flow theory including normal and oblique shock waves, and estimation of lift and drag of supersonic airfoils. Introduction to heat transfer. Includes lab. Prerequisite: Aero 303 or 351. Semester Hours: 3, spring.

Aero 403. Fundamentals of Propulsion: Fundamental principles as they apply to practical systems. Emphasis is placed upon propulsion systems used in aircraft, missiles and space vehicles. Includes lab. Prerequisite: Aero 304 or 361. Semester Hours: $2\frac{1}{2}$, fall.

Aero 404. Applied Aerodynamics: A study of airfoil theory, wing theory, drag estimation and theory of lift; fundamentals of perform-

ance analysis; longitudinal and lateral-directional static stability; introduction to longitudinal dynamic stability; discussion of lateral-directional dynamic stability; and a survey of control forces and hinge moments. Includes lab. Prerequisite: Aero 403. Semester Hours: 3, spring.

Enrichment Courses

Aero 351. Thermodynamics: Zeroth law and temperature, equations of state, first law and energy, heat capacities, p-v-T surfaces of real substances, second law and entropy, engineering applications, and gaskinetics. Prerequisites: Math 202 or 162 and completed or enrolled in Phys 212. Semester Hours: 2½, fall or 3, spring.

Aero 361. Fluid Dynamics I: The dynamics and thermodynamics of compressible fluid flow. One dimensional steady flow including nozzles, ducts, normal shocks, friction and heating effects, and some incompressible cases. Introduction to two-dimensional flow. Includes lab. Prerequisites: Aero 351, with a grade of "C" or better, Math 251, and completed or enrolled in Mech 361. Semester Hours: 2½, fall.

Aero 362. Fluid Dynamics II: Oblique shocks, Prandtl-Meyer flow, linearized theory for supersonic and subsonic flow with incompressible flow as a special case, second-order theory, airfoil and wing theory, static stability, and control of air vehicles. Includes lab. Prerequisite: Aero 361. Semester Hours: 3, spring.

Aero 363. Heat Transfer: Energy transport by conduction, radiation, and convection. Detailed treatment of viscous and thermal boundary layers. Application to problems of current interest. Includes lab. Prerequisite: Aero 304 or 361. Semester Hours: 2½, fall or spring.

Aero 461. Propulsion and Performance: Aerothermo-chemistry, air-breathing jet propulsion engines, aircraft performance, chemical rocket propulsion, and space propulsion systems. Includes lab. Prerequisites: Aero 362 and Chem 102. Semester Hours: 2½, fall.

Aero 463. Advanced Topics in Aeronautics: Selected topics of current interest in aerodynamics, propulsion, performance, and stability and control. Prerequisite: Aero 362. Semester Hours: 2½, fall.

Aero 464. Preliminary Design of Airlift Vehicles: Fundamentals of design presented by means of preliminary design of an advanced

airlift vehicle. Determination of vehicle configuration to meet given specifications; weight estimation; selection of propulsive system; performance calculations; longitudinal and lateral static stability analysis. Includes lab. Prerequisites: Aero 461 and either Aero 463 or a substitute course approved by the department. Semester Hours: 4, spring.

Science 451. Engineering Applications of Digital Computers: Application of digital computer techniques to problems from the field of engineering science. Student selects, analyzes, and programs problems for digital computer solution. Prerequisites: Math 352 and permission of the department. Semester Hours: 2½, fall of 3, spring.

Aero 551. Dynamics of Flight: Advanced topics in aircraft stability and control. Stability of vehicles in orbital and re-entry trajectories. Use of Lagrange multipliers and the calculus of variations for the determination of optimum trajectories. Prerequisite: Aero 463. Semester Hours: 3, spring.

Aero 552. Experimental Techniques in Engineering Science: Introduction to theory and practice in modern experimental techniques and instrumentation. Student plans, conducts, and reports on selected experimental problems with minimum faculty supervision. A laboratory course with introductory lectures. Prerequisites: Aero 363, Aero 461, and permission of the department. Semester Hours: 3, spring.

Science 571. Space Propulsion Systems: A detailed survey of propulsion concepts for space flight. Includes study of propulsion systems such as chemical and nuclear rockets, plasma jets, ion drives, photon drives, and magneto-hydrodynamics. Power generation in space is covered. Prerequisites: Aero 461, Phys 453, and Astro 451. Semester Hours: 3, fall.

Aero 574. Thesis: Topic established with Head of Department. Semester Hours: 6 to 9, fall or spring.

Department of Astronautics

Professor and Head of Department: Col. Roger R. Bate

Associate Professors: Maj. Thomas; Capt. McKelvey

Assistant Professors: Lt. Col. Korthals; Majs. Casey, Leiser, Riccioni; Capts. Bodeen, Jacobs.

Instructors: Lt. Col. McElmurry; Majs. Hjorten, Wittry; Capts. Frye, Millard, Molnar Preyss

Prescribed Courses

Astro 401. Elements of Astronautics I: Elementary astrodynamics including study of the restricted two-body system, orbit determination, interplanetary trajectories, lunar trajectories, and ballistic missile trajectories. Prerequisites: Math 202 and Mech 331. Semester Hours: 2½, fall.

Astro 402. Elements of Astronautics II: Fundamentals of space technology including space environment, space power plants, guidance and control, high-thrust trajectories, re-entry trajectories, and preliminary design considerations. Prerequisite: Astro 401. Semester Hours: 3, spring.

Enrichment Courses

Astro 451. Astrodynamics: Fundamentals of free-flight trajectories including the two- and three-body problems, ballistic, satellite, interplanetary, and lunar trajectories. Prerequisite: Mech 361. Semester Hours: 2½, fall or 3, spring.

Astro 452. Linear Control System Analysis: Systematic methods of setting up physical problems in terms of linear mathematical models. Systematic methods of solving sets of linear differential equations with constant coefficients. Introduction to Laplace transforms, block diagrams, and transfer functions. Examples are drawn from the areas of servo-mechanisms, missile guidance control, and stable platforms. Prerequisites: Math 251, EE 321, and Mech 331. Semester Hours: 2½, fall or 3, spring.

Astro 453. Space Technology: Fundamentals of power and re-entry trajectories, orbit determination, and trajectory selection criteria. Prerequisites: Astro 451 and completed or enrolled in Math 352. Semester Hours: 2½, fall or 3, spring.

Astro 454. Ballistic and Space Vehicle Guidance: Fundamentals of guidance including guidance philosophies, inertial, radio and optical guidance, and their applications. Prerequisites: Astro 451 and 452 and completed or enrolled in Astro 453. Semester Hours: 2½, fall or 3, spring.

Astro 464. Ballistic and Space Vehicle Design: Methods of mission analysis including propulsion efficiency, ideal velocity requirements, and payload requirements. Preliminary design of a space vehicle to

satisfy a predetermined mission requirement. Prerequisites: Astro 451, 452, and 453. Semester Hours: 4, spring.

Astro 551. Advanced Astronautics: Advanced topics in astronautics. Prerequisites: Astro 451 and 453, and completed or enrolled in Astro 452 and 454. Semester Hours: 3, spring.

Astro 574. Thesis: Topic established with Head of the Department. Prerequisite: First Class. Semester Hours: 6 to 9, fall or spring.

Department of Electrical Engineering

Professor and Head of Department: Col. Harold J. Bestervelt

Professor: Col. James V. G. Wilson (currently assigned as Associate Dean for Academic Affairs)

Associate Professors: Lt. Cols. Basham, Lathrop; Maj. Davis, Knauss

Assistant Professors: Maj. Garrett, Larsen, White; Capt. Beresford, Huston, Moran, Parshall

Instructors: Lt. Col. Stonebraker; Maj. Saxon; Capt. Gowen, Hanson, Moore, Schelonka, Violette, Wesner

Prescribed Courses

EE 321. Circuit Analysis: Mathematical analysis of electrical circuits with emphasis on fundamental principles, natural and steady state response, series and parallel resonance, loop (mesh) and nodal analysis of multimesh circuits, equivalent circuits, and Thevenin's and Norton's theorems. Includes lab. Prerequisites: Phys 212 and Math 202. Semester Hours: 2½, fall or 3, spring.

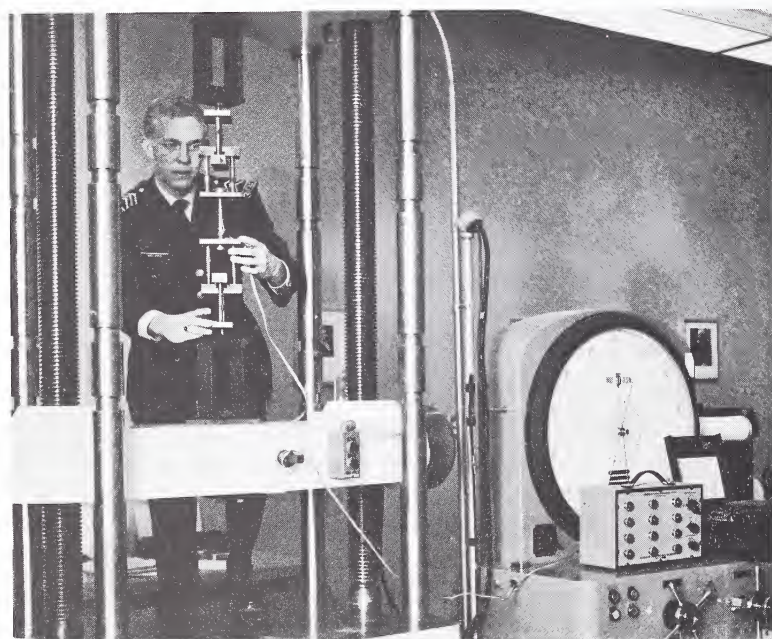
EE 322. Circuits, Energy Conversion, and Electronics: Magnetic circuits, nonlinear circuit elements, graphical methods of solutions, three-phase power considerations, and elementary AC and DC machinery. Vacuum tubes and semi-conductors receive parallel treatment. Includes lab. Prerequisite: EE 321. Semester Hours: 2½, fall or 3, spring.

EE 421. Electronics and Electromagnetic Radiation: Graphical, analytical, and experimental analysis of amplifiers, oscillators, and power supplies. An introductory study of information transmission. Includes lab. Prerequisite: EE 322. Semester Hours: 2½, fall or 3, spring.

Enrichment Courses

Students majoring in Engineering Sciences will substitute EE 361, 362 and 456 for the prescribed course sequence. Either sequence must be taken in consecutive semesters.

EE 361. Circuit Analysis: Contains all of the material of EE 321 and the first third of EE 322. Prerequisites: Completion or concurrent registration in Math 251 and a cumulative science GPA of 3.0 or above. Includes lab. Semester Hours: 2½, fall or 3, spring.



EE 362. Intermediate Electronics: The analysis of AC and DC machinery, semi-conductor and vacuum diodes, power supplies and filters, four-terminal networks, the vacuum tube and the transistor in amplifiers, oscillators, and wave-shaping circuits. A study of the principles of feed-back. Includes lab. Prerequisite: EE 361. Semester Hours: 2½, fall or 3, spring.

EE 453. Analog Computation: Analog computer techniques as applied to the solution of differential equations arising in engineering problems. Topics considered are electronic computing circuits, time

and magnitude scale factors, and problem set-up procedures. Prerequisites: Math 251 and EE 321 or 361. (May be taken concurrently with EE 321 or 361 with consent of the department.) Semester Hours: 2½, fall or 3, spring.

EE 454. Linear Systems Synthesis: Depending upon the interest of students involved, emphasis will be placed either on network synthesis or control system synthesis. Contains a study of the techniques of Routh, Hurwitz, Bode, Nyquist, and Evans. Study of a particular area required for a specific design problem in the Engineering Sciences Major may be substituted upon approval of the department. Prerequisites: EE 362, Astro 452, and consent of the department. Semester Hours: 2½, fall or 3, spring.

EE 455. Electronics and Electromagnetic Radiation: Study of HF and UHF oscillators, modulation techniques, transmission lines, filters, wave-guides, antennas, and radiation concepts with reliance on vector analysis and Maxwell's equations. Radar considerations include a study of selectivity, sensitivity and range, and radar components and systems. Includes lab. Prerequisite: EE 362. Semester Hours: 2½, fall or 3, spring.

EE 456. Advanced Communications and Electromagnetic Radiation: Study of current and long-range communication systems and techniques, including efforts being undertaken in this field by the Air Force Systems Command. Includes lab. Prerequisite: EE 455. Semester Hours: 2½, fall or 3, spring.

EE 464. Design: Application of basic engineering design principles in the electrical engineering field. Specific area of emphasis will depend upon preparatory courses students have taken. Prerequisite: EE 453 or 454. Semester Hours: 4, fall or spring.

EE 551. Servomechanism Analysis and Synthesis: Synthesis and analysis of complex servomechanism systems involving multiple loops. Includes lab. Prerequisite: Astro 452. Semester Hours: 2½, fall or 3, spring.

EE 562. Individual Study: Advanced topics in engineering design. Prerequisite: Consent of the Department. Semester Hours: 4 to 6, fall or spring.

EE 574. Thesis: Topic established with Head of Department. Semester Hours: 6 to 9, fall or spring.

Department of Mechanics

Professor and Head of Department: Col. Archie Higdon (on sabbatical leave with the American Society for Engineering Education)

Professor and Acting Department Head: Col. Charles W. Sampson

Associate Professors: Lt. Col. Orton; Majs. Erdle, Estes, Quanbeck; Capts. Giltner, McCreery

Assistant Professors: Maj. Brunson; Capts. Butt, Harvill, Johnson, McClammy, Oppel, Stewart; 1st Lt. Iwan

Instructors: Maj. Bacha; Capts. Choate, Curtis, Doderer, Fluhr, Gebhardt, Kirchgessner, Neubauer, Rule, Smetana; 1st Lt. Jennings

Prescribed Courses

Cadets will fulfill their 2-hour engineering drawing and descriptive geometry requirement by completing either Mech 221 or Mech 227-228.

Mech 221. Basic Engineering Drawing and Descriptive Geometry: Develops ability to read and understand technical drawings and to visualize objects in space. Includes freehand sketching, oblique and isometric drawing, orthographic projection, descriptive geometry, intersections and developments, sections, conventions, dimensioning, fasteners, aircraft working drawings, and construction of charts and graphs. Semester Hours: 2, fall or spring.

Mech 227. Engineering Drawing: Freehand sketching, oblique and isometric drawing, and orthographic projection. Semester Hour: 1, fall or spring.

Mech 228. Descriptive Geometry: Descriptive geometry, intersections and developments, and aircraft working drawings. Prerequisite: Mech 227. Semester Hour: 1, fall or spring.

Mech 331-332. Engineering Mechanics, Mechanics of Materials: The principles of statics and dynamics to include the free body diagram concept, the equations of equilibrium, friction, centroids, moments of inertia, kinematics, kinetics (force, mass and acceleration, work and energy, impulse and momentum). Mechanics of materials includes centric, torsional and flexural loadings, columns, impact and fatigue, principal stresses, and some materials testing

laboratory. Prerequisites: Phys 211 and credit or enrollment in Math 102 or equivalent. Semester Hours: $2\frac{1}{2}$, fall, $3\frac{1}{2}$, spring; or 3, spring, and 3, the following fall.

Enrichment Courses

Students majoring in Engineering Sciences will substitute Mech 361-362 for Mech 331-332.

Mech 355. Applications of Solid State: Properties of engineering materials oriented toward the special problems of materials used in manufacturing aircraft and missiles. Emphasis is placed on the fundamental science of materials including theory of solids, behavior under load, deterioration, and theory of mechanical testing. Prerequisites: Mech 332 or 362 and Phys 452. Semester Hours: $2\frac{1}{2}$, fall or 3, spring.

Mech 361-362. Engineering Mechanics, Vectors; Mechanics of Materials: Develops the student's facility to use vector methods in analysis, thereby preparing for advanced study in science and engineering. Covers principles of statics, dynamics and mechanics of materials, free body concept, equations of equilibrium, friction, centroids, moments of inertia, kinematics, kinetics and mechanics of materials, including centric, torsional, and flexural loading and principal stresses. Prerequisites: Phys 211 and credit or enrollment in Mech 221 and Math 251. Semester Hours: $2\frac{1}{2}$, fall, $3\frac{1}{2}$, spring; or 3, spring, and 3, the following fall.

Mech 451. Fundamentals of Aerospace Structures: Mechanics of aircraft structures to include unsymmetrical bending, curved flexural members, torsional resistance of thin-walled members and non-circular cross sections, and shear center calculation. Energy methods relating loads and deflections for both determinate and indeterminate structures. Prerequisite: Mech 332 or 362. Semester Hours: $2\frac{1}{2}$, fall or 3, spring.

Mech 454. Advanced Dynamics and Vibrations: A continuation of the study of dynamics to include rigid body dynamics of three dimensions, Hamilton's and LaGrange's equation, and motion in central force fields. The vibrations of linear systems with single and multiple degrees of freedom are analyzed. Free, damped, and forced vibrations are considered. Prerequisites: Mech 332 or 362 and Math 251. Semester Hours: $2\frac{1}{2}$, fall or 3, spring.

Mech 455. Principles of Materials: A continuation of Mech 355. The fundamentals of atomic structure, crystal structure, phase equilibria, and chemical kinetics as they are related to the properties of solids and solid state reactions. Prerequisite: Mech 355. Semester Hours: 2½, fall or spring.

Mech 464. Design: Individual problems in aerospace structures, dynamics, mechanics of materials or properties of materials. Prerequisite: Mech 451 or 454 or 455. Semester Hours: 4, fall or spring.

Mech 551. Advanced Aerospace Structures: Aeroelastic phenomena to include deformation of structures under static and dynamic loading. Methods of structural analysis are covered for frameworks, shells, and columns. Some creep and thermal effects are discussed. Prerequisite: Mech 451. Semester Hours: 2½, fall or spring.

Mech 552. Vibrations of Aerospace Structures: Analysis of linear vibration problems with specific application to aeroelasticity. Solution of multi-degree-of-freedom problems for free, damped, and forced motions to include LaGrange's equation and Hamilton's principle. Deformations of aircraft and missile structures under static and dynamic loads to include use of influence coefficients, differential equations, and integral equations. Use of generalized coordinates, normal modes, and frequencies. Elementary vibrations of continuous media, lateral vibration of beams, torsional vibration of circular shafts, and longitudinal vibration of bars. Prerequisites: Mech 362 and Math 251. Semester Hours: 3, spring.

Civ Engr 350. Experimental Stress Analysis Laboratory: A series of laboratory exercises with classroom discussion of the theoretical principles which apply both to test specimens and testing machines. Subjects include the use of such modern techniques as electronic strain gauges, stress coat, and photoelasticity, as well as the more basic systems. Also included is an introduction to concrete testing. No outside preparation is required. Prerequisite: Phys 211; some basic knowledge of strength of materials is helpful but not mandatory. Semester Hours: 2, fall or spring.

Civ Engr 451. Design of Engineering Structures: An introduction to the techniques and philosophy of design. Building and bridge structures are considered, and elementary engineering designs are accomplished in both steel and aluminum. Attention is given to

specification requirements and design details. Prerequisite: Mech 332 or 362. Semester Hours: 2½, fall.

Civ Engr 452. Engineering Design and Nuclear Weapons Effects on Structures: Design concepts of Civ Engr 451 are continued. Elementary designs in reinforced concrete are accomplished with appropriate use of standard specifications. Effects of nuclear explosions on building structures and utilities are covered. Studies include characteristics of blast wave action against structures, factors affecting the response of structures, damage evaluation criteria, and protective shelter construction. Prerequisite: Civ Engr 451. Semester Hours: 3, spring.

Science 350. Electro-Mechanical Systems Laboratory: A series of laboratory exercises which illustrate the fundamental mathematical concepts in analysis of physical systems. Subjects include the representation of physical systems, design of experiments, reduction and analysis of data, error analysis, and study of single degree of freedom systems. No outside preparation required. Prerequisites: Phys 212, Math 202 or equivalent, and Second or Third Class standing. Concurrent enrollment in Mech 331/361 or EE 221/361 is recommended. First Classmen may enroll only with permission of the course director. Semester Hours: 2, fall or spring.

Mech 574. Thesis: Topic established with Head of Department. Semester Hours: 6 to 9, fall or spring.

Division of Humanities

Division Chairman: Col. Peter R. Moody

Division Executive: Maj. William J. Thorpe

The Division of Humanities offers courses in English, philosophy, foreign languages, history, and fine arts. Through these studies the cadet learns to write effectively, acquires an appreciation of literature, develops an understanding of major philosophical problems, attains facility in understanding and speaking a foreign language, and acquires a knowledge of Western heritage and contemporary world civilization. The prescribed curriculum includes 36½ semester hours in the Humanities Division.

Department of English

Professor and Head of Department: Col. Peter R. Moody

Professor: Lt. Col. Auser

Associate Professors: Lt. Col. Gatlin; Majs. Alm, Brockway, Briand, Clark, Galt, Pearsall, Richter; Cpts. Caton, Mendelsohn

Assistant Professors: Maj. Reid; Cpts. Anderson, Berthelot, Burroughs, Gray, Haney, Kitch, Lucas, Maroldo, J. Miller, Stevens, Wakin, Zink; 1st. Lt. Myro

Instructors: Cpts. Ayers, Berke, Conn, Dater, Dougherty, Feather, Girod, Kielcheski, McCarthy, Roades, Sheehan, Sheldon; 1st. Lts. Conely, Cooper, Selling; 2d. Lt. W. Miller.

Prescribed Courses

English 101. Composition and Introduction to Literature: Study of basic rhetorical principles and frequent practice applying these principles. Writing and revising one theme per week. Semester Hours: 2½, fall.

English 102. Composition and Literature: Continuation of English 101 with increased emphasis on the study of selected literary works. Cadets complete one or two research projects. Prerequisite: English 101. Semester Hours: 3, spring.

English 203. English for Foreign Students: Intensive study of literature and grammar with emphasis on the use of idiomatic English. Prerequisite: Permission of the department. Semester Hours: 2½, fall.

English 204. English for Foreign Students: Continuation of English 203 with the addition of research projects. Prerequisite: English 203. Semester Hours: 3, spring.

The following Second Class courses are an option sequence. A cadet must complete either English 331 or 332 and either English 334, 334X, 335 or 336.

English 331. Technical Report Writing and Speech: A course for science majors. Study and application of the basic principles of clear communication in technical expository writing and speech. Prerequisites: English 101-102 or 151-152. Semester Hours: 2½, fall or 3, spring.

English 332. Advanced Composition and Speech: A course for non-science majors. Affords practice in advanced writing and speaking. Prerequisites: English 101-102 or 151-152. Semester Hours: 2½, fall or 3, spring.

English 334. Ethics: Study of traditional and contemporary ethical theory for the development of sound moral character and the exercise of intelligent leadership. Prerequisites: English 101-102 or 151-152. Semester Hours: 2½, fall or 3, spring.

English 334X. Ethics: Special sections of English 334 designed for those Fourth Class cadets who have received college credit for courses equivalent to English 101-102 or 151-152. Semester Hours: 2½, fall.

English 335. Logic: Study of the fundamental patterns of sound reasoning. Provides the cadet with the most effective thought tools necessary for clear, concise communication and helps him develop the ability to analyze and solve significant problems. Prerequisites: English 101-102 or 151-152. Semester Hours: 2½, fall or 3, spring.

English 336. Problems in Philosophical Analysis: Analysis and criticism of contemporary philosophical problems. Helps the cadet to organize and direct his thinking most effectively and to understand the importance of sound philosophical analysis for intelligent leadership. Especially recommended for science majors and those students interested in the philosophy of science. Prerequisites: English 101-102 or 151-152. Semester Hours: 2½, fall or 3, spring.

English 403. Masterworks of Western World Literature: Study of literature from the Greek classics through Shakespeare. Reading, discussion, and critical analysis of Greek tragedies, selections from Chaucer's *Canterbury Tales*, and selected Shakespearean plays. Prerequisites: English 331 or 332 and English 334, 335 or 336. Semester Hours: 2½, fall.

English 404. Masterworks of Western World Literature: Study of literature from the Renaissance to the contemporary period. Reading, discussion, and critical analysis of Renaissance, Romantic, and contemporary literary works. Prerequisite: English 403. Semester Hours: 3, spring.

Enrichment Courses

English 151. Composition and Literature: Advanced critical writing and the analysis and discussion of selected literary works. Pre-

requisite: Upper 20% of the class on entrance and validation examinations. Semester Hours: 2½ plus 2½ validation for English 101, fall.

English 152. Modern Literature: Analysis in depth of the novel, poetry, and drama with emphasis on critical writing and research techniques. This course may be substituted for English 404. Prerequisite: English 151. Semester Hours: 3, spring.

English 351. Speech: Informative and persuasive speaking. A number of speeches, 5 to 20 minutes in length, are required. Prerequisites: English 101-102, or with departmental approval Fourth Classmen may enroll. Semester Hours: 2½, fall or spring.

English 352. Modern American Literature: Reading and analyzing representative works of some major American writers not included in prescribed literature courses. Prerequisites: English 101-102 or equivalent. Semester Hours: 3, spring.

English 353. Shakespeare: Intensive study of several Shakespeare plays not included in the prescribed literature courses. Plays selected represent periods of Shakespeare's development and include comedies, histories, and tragedies. Prerequisites: English 101-102 or equivalent. Semester Hours: 2½, fall.

English 451. Introduction to the Arts: Introduction to painting and sculpture with emphasis upon the communicative elements and techniques involved in individual art forms. Prerequisite: English 101-102 or equivalent. Semester Hours: 2½, fall.

English 452. Introduction to the Arts: Continuation of English 451. Provides a basis for understanding and appreciating architecture, music, opera, and ballet. Prerequisites: English 101-102 or equivalent and English 451 or permission of the department.

English 453. Fine Arts: Survey of the styles and achievements of representative major artists from the classical period to the present. Prerequisites: English 101-102. Semester Hours: 2½, fall or 3, spring.

English 454. Fine Arts Laboratory: Cadets complete a series of projects relating to basic design, color, elementary painting, and sculpture techniques. Semester Hours: 2½, fall or 3, spring.

English 455. Music Appreciation: Includes on an expanded scale the musical instruction taught in English 452. Survey of musical

forms and styles and study of major works by representative composers. Semester Hours: 3, spring.

English 456. Great Books: Reading, discussion, and analysis of the works of major writers of world literature not covered in prescribed courses. Prerequisites: English 101-102 or equivalent. Fourth Class cadets who have transfer credit for English 101-102 and have successfully completed English 334X may take this course as a substitute for English 404. Upperclassmen may take English 456 only as an enrichment course. Semester Hours: 3, spring.

English 461. Contemporary World Literature: Study of contemporary American, British, and continental fiction and drama. Prerequisites: English 101-102 or equivalent and upperclass standing. Semester Hours: 2½, fall or 3, spring.

English 471. Classical Readings: A tutorial course in classics of the ancient world. Emphasis lies on the ability to read independently, thoroughly, and with understanding. Prerequisites: English 101-102 or equivalent and upperclass standing. Semester Hours: 2½, fall or spring.

English 472. English Novels: A tutorial course on the development of the English novel covering eight major authors from Defoe to Ford. Emphasis lies on the ability to read independently, thoroughly, and with understanding. Prerequisites: English 101-102 or equivalent and upperclass standing. Semester Hours: 2½, fall or spring.

Department of Foreign Languages

Professor and Head of Department: Col. Alfonse R. Miele

Associate Professors: Lt. Col. Cortez; Majs. Velarde, Zagorski; Capts. Barnett, Geffen

Assistant Professors: Capts. Anderson, Carney, Donoho, Fatiuk, Heine, Judel, Nixon, Ortiz-Lopez, Ryan, Sovinsky

Instructors: Majs. Berdecio, Davison, Yuan, Voudouris; Capts. Fauret, Geneste, Guzman, McManis, Nikulla

Prescribed Courses

For Lang 101-102. English as a Second Language: For students whose native language is not American English. Transition to American vernacular English through functional speaking, reading,

and writing based on individual needs. Semester Hours: 2½, fall or 3, spring.

The prescribed foreign language selected must coincide with area history preference. In unusual situations this requirement may be waived.

For Lang 201-241. Chi 201 — Elem Spoken Chinese, I; Fr 211 — Elem Spoken French, I; Ger 221 — Elem Spoken German, I; Russ 231 — Elem Spoken Russian, I; Span 241 — Elem Spoken Spanish I: Introduction to a foreign language with emphasis on understanding



and speaking. Inductive pattern drills. Structural analysis. Language lab supplements oral training and teaching. Prerequisite: Third Class standing. Semester Hours: 4, fall.

For Lang 202-242. Chi 202 — Elem Spoken Chinese, II; Fr 212 — Elem Spoken French, II; Ger 222 — Elem Spoken German, II; Russ 232 — Elem Spoken Russian, II; Span 242 — Elem Spoken Spanish, II: Continuation of For Lang 201-241. Includes some practice in reading and writing. Language lab. Prerequisites: Third Class standing and For Lang 201-241. Semester Hours: 5, spring.

Enrichment Courses

For Lang 351 to 391. Chi 351 — Intermediate Spoken Chinese, I; Fr 361 — Intermediate Spoken French, I; Ger 371 — Intermediate Spoken German, I; Russ 381 — Intermediate Spoken Russian, I; Span 391 — Intermediate Spoken Spanish, I: Review of the essential elements of language structure. Conversational practice and pattern drills. Civilization and culture of the country concerned. Selected readings. Prerequisites: "B" or better average in For Lang 202-242 or the equivalent, plus the approval of the appropriate course director. Semester Hours: 2½, fall or spring.

For Lang 352 to 392. Chi 352 — Intermediate Spoken Chinese, II; Fr 362 — Intermediate Spoken French, II; Ger 372 — Intermediate Spoken German, II; Span 392 — Intermediate Spoken Spanish, II: Continuation of For Lang 351, 361, 371, and 391. Prerequisites: Completion of For Lang 351, 361, 371, or 391 with "C" or better average, plus the approval of the appropriate course director. Semester Hours: 2½, spring.

For Lang 382. Russ 382 — Intermediate Spoken Russian, II: Accelerated structural analysis. Additional conversational practice. Civilization and culture of Russia. Selected readings. Prerequisites: "B" or better average in Russian 231-232 or the equivalent, plus the approval of the appropriate course director. Semester Hours: 2½, spring.

Department of History

Professor and Head of Department: Col. Wilbert H. Ruenheck

Professor: Col. George V. Fagan (Director of the Library)

Associate Professors: Lt. Col. Downs; Majs. Bowers, Jones, Phillips, Thorpe; Capt. Peck

Assistant Professors: Maj. Barnhill; Capts. Burch, Cooke, Folkman, Fox, Hostetter, Johnson, Rohr, Schlight, Sutch

Instructors: Majs. Collins, Hays, Scrivner; Capts. Boyle, Caine, Cook, Flammer, Mets, Norton, Rickey, Whelan

Hist 111. Modern European History: Survey of major social, political, and economic developments from the French Revolution to the present. Emphasis is on the growth of industrialism, liberalism, nationalism, democracy, totalitarianism, and their impact on European society. Semester Hours: 2½, fall.

Hist 112. History of the United States: Survey of American history from the colonial beginnings to the present. Emphasis is on the evolution of domestic, political and social forces, and the development of American foreign policy stressing the inter-relationship of the armed forces and American diplomacy. Prerequisite: Hist 111. Semester Hours: 3, spring.

Hist 202. Military History: Investigation of the scope and complexity of war. Includes the historical development and analysis of military principles, theory, trends, strategy, doctrine, weapons, organization, logistics, and tactics. Covers military affairs and civil-military relations with emphasis on the major wars of the 20th Century during which aerial warfare emerged. Prerequisites: Hist 111-112. Semester Hours: 3, spring.

The following courses are an option sequence. A cadet must complete either Hist 205, 212, 222 or 232.

Hist 205. Diplomatic History of Modern Europe: Examination of the basic interests and foreign policies of the major European powers from 1815 to 1939. Emphasis is on the methods used in maintaining peace after the Napoleonic Wars, the nationalistic movements, the development of standing alliances, the origins of the First World War, the peace settlement after 1918, and the policies of the great powers up to the outbreak of the Second World War. Prerequisites: Hist 111-112. Semester Hours: 2½, fall.

Hist 212. History of Latin America: The discovery, conquest, and growth of Spanish and Portuguese America. Emphasizes political, social, economic, and cultural institutions since the Wars of Independence with particular stress on 20th Century problems. Prerequisites: Hist 111-112. Semester Hours: 2½, fall.

Hist 222. History of the Far East: The modern history of East Asia with particular emphasis on China and Japan. Stresses the fundamental cultural institutions of these areas and the political, social, and economic effects of 19th and early 20th Century relationships with Western powers. Implications of contemporary tensions are analyzed. Prerequisites: Hist 111-112. Semester Hours: 2½, fall.

Hist 232. History of Russia: Survey of the political and social development of the Russian nation with equal emphasis on Imperial Russia and the Soviet Union. Covers the Bolshevik Revolution, Marx-Lenin doctrine, growth of the Communist State, and Soviet

foreign relations since World War II. Prerequisites: Hist 111-112. Semester Hours: 2½, fall.

Enrichment Courses

Hist 351. United States Diplomatic History: Survey of American diplomatic history from the Revolution to the present. Stresses the evolution of fundamental foreign policies such as the Monroe Doctrine, Open Door, Freedom of the Seas, and Pan-Americanism. Prerequisites: Hist 111-112. Semester Hours: 2½, fall or 3, spring.

Hist 355. History of Military Thought: Historical investigation of the ideas of selected major military thinkers ranging from Machiavelli to Douhet and their impact on the development of military doctrine. Includes a series of special lectures by members of the department, reporting on the results of personal research in military history. Prerequisite: Hist 202. Semester Hours: 3, spring.

Hist 361. History of Civil-Military Relations: An analysis of the constitutional, political, economic, and social ramifications stemming from the rise of the nation-state; the emergence of national armies; and the evolution of total war. Prerequisite: Hist 202. Semester Hours: 2½, fall.

Hist 462. Southeast Asia: Studies in Unconventional Warfare: Pro-seminar readings and discussions in Communist revolutionary warfare in Southeast Asia, focusing on the Philippines, Malaya and Indo-China. The social, economic, philosophical and political backgrounds of each country is studied. Semester Hours: 3, fall or spring.

Hist 471. The Theory and Employment of Airpower: Readings and discussion for First Classmen electing this course for the airmanship option. Traces the evolution in airpower doctrine and the employment of aircraft as a weapon system during and since World War II. U. S. air doctrine is studied in some depth. An examination of the employment of airpower in small wars and limited military operations, including guerrilla warfare, brings the evolution into timely focus. Prerequisite: Hist 202. Semester Hours: 2½, fall or spring.

Hist 551-552. Diplomatic History Seminar: A graduate-level course for cadets with a special aptitude for history designed to augment their capacity for future study. Explores in depth selected topics in American diplomacy to provide a fuller understanding of the com-

plex factors surrounding each. The objective is to develop the ability for intelligent analysis of foreign affairs. Prerequisites: Hist 111-112. Semester Hours: 2½, fall or 3, spring.

Division of Social Sciences

Division Chairman: Col. Christopher H. Munch

Division Executive: Capt. John S. Pustay

The Division of Social Sciences offers courses in management, psychology, economics, geography, law, and political science. These courses are designed to provide an understanding of national and international affairs, to furnish a background for handling management problems, and to provide a basis for further development as a military manager-leader in the modern world.

Included in the prescribed curriculum are 31½ semester hours in the Social Sciences Division. Through the completion of selected enrichment courses offered by this Division, a cadet may obtain a Major in Management or a Major in International Affairs. A Major in Management serves as a background for many positions of leadership and responsibility in the Air Force. The major prepares the cadet for graduate education in civilian institutions in such fields as business administration, industrial engineering, and industrial management. A Major in International Affairs provides a background for Air Force duties in operations, intelligence, planning and programming, foreign representation, and politico-military affairs. The major prepares the cadet for graduate education in the social sciences, including the master's program in international affairs offered by the Academy in cooperation with civilian universities.

Department of Behavioral Sciences

Professor and Head of Department: Col. Herman F. Smith

Associate Professors: Col. Wojdyla; Majs. Phillips, Stockhouse, Walter; Capt. Cochran

Assistant Professors: Majs. Andrews, Butler, Normand, Sexson; Capts. des Islets, Mills

Instructors: Capts. Fortuna, Graves, Hooper, Muhlback, Noyd, Raful

Prescribed Courses

Beh Sci 203. General Psychology: Study of determinants of individual behavior in development toward physical, psychological, and social maturity. Examination of physiological factors, perceptual processes, motivational forces, learning characteristics and conditions, personality concepts, and social influences with applicability to Air Force leadership. Semester Hours: 2½, fall or spring.

Beh Sci 302. Human Relations in Management: Study of basic management functions with primary emphasis on group dynamics and the development of knowledge, skills, and attitudes necessary to understanding human situations and taking action. Considers the manager's responsibilities, supervisory and leadership roles, communication patterns, motivation, formal and informal organization, and situational and environmental factors as they affect individual and group behavior. Administrative and organizational reality achieved through assigned readings, case method, and role playing. Prerequisites: Beh Sci 203 and Second or Third Class standing. Semester Hours: 2½, fall or spring.

Beh Sci 303. Psychology of Family Relations: Study of the transition from single to married life with emphasis on the Air Force environment. Investigates cultural factors, choosing a compatible mate, and inter-family relationships. Prerequisites: Beh Sci 203 and Second or Third Class standing. Semester Hour: ½, spring.

Enrichment Courses

Beh Sci 282. Elements of Management: Introduction to the field of management with emphasis on processes involved in the performance of fundamental managerial functions of planning, organizing, directing, coordinating, and controlling. A study of personnel management considering the procurement, development, maintenance, and utilization of a work force to accomplish the objectives of the organization. The case method of instruction is used extensively to give the student experience in the solution of actual case problems. No prerequisites are required. Semester Hours: 2½, fall or 3, spring.

Beh Sci 352. Social Psychology: Investigation of the interactional forces that exist between groups and the individual in society. Examines the basic social-psychological factors which operate in a person's environment. Explores the effects of diverse social and

psychological pressures, such as public opinion, propaganda, and cognitive structures, on the individual and the group. Applies research in the field of social psychology to the military community. Prerequisite: Beh Sci 203. Semester Hours: 2½, fall or 3, spring.

Beh Sci 353. Industrial Psychology: Provides an insight into the psychology of the working environment. Investigates psychological methods used in the solution of human problems in industry, business, and the military. Prerequisite: Beh Sci 203. Semester Hours: 2½, fall or spring.

Beh Sci 355. Sociology: Introduction to the scientific study of group life influences on human behavior. Includes such factors as culture, primary groups, minorities, social stratification, population, family, city, criminal and delinquent behavior, and the industrial, political, and military environment. No prerequisites required. Semester Hours: 2½, fall or spring.

Beh Sci 372. Applied Psychology: Introduction to experimental design and psychological research methods with special application to Air Force situations and problems. Research methods are related to real studies such as aircraft design, training programs, accident prevention, personnel selection and evaluation, and morale and opinion assessment. Includes lab. Prerequisites: Beh Sci 203. Semester Hours: 2½, fall or 3, spring.

Beh Sci 482. Industrial Management: Develops a knowledge of management principles as applied to programming, production, and maintenance activities as found in civilian industry and the Air Force. Emphasis is placed on the Air Force concept of weapon system management including research and development, test and evaluation, and procurement and production programs. Typical Air Force case problems are analyzed and discussed. Prerequisite: Beh Sci 282 or 302. Semester Hours: 3, spring.

Beh Sci 483. Labor-Management Relations: Provides an understanding of labor-management situations which confront the military leader. Survey of the management role in industrial relations, the public interest in national labor policy, and the role of the military in industrial relations. Selected case studies of current interest. No prerequisites required. Semester Hours: 2½, fall or spring.

Department of Economics and Geography

Professor and Head of Department: Col. Wayne A. Yeoman

Associate Professors: Lt. Cols. Jackson, Taylor; Maj. Able, Caroom, Hansel; Capt. Jones

Assistant Professors: Lt. Col. Castelli; Maj. Roberts; Capts. Ballantyne, Carlson, Colbrunn, Fitzpatrick, Patton, Schoderbek; 1st. Lt. Kain

Instructors: Capts. Ackerman, Duckworth, Duffett, Emrick, Gilster, Houston, Karns, Mower, Zock; 1st. Lt. Brazzel

Prescribed Courses

Geog 141. Introduction to World Geography: A systematic approach to the basic elements of geography. The physical landscape is introduced through earth-sun relationships, mathematical geography, earth measurements, map projections and interpretation. The earth is analyzed from the standpoint of climatic, vegetation, soil factors and regions. Man's relationship to these physical conditions is described and evaluated through a world regional analysis of the human environment. The nature and pattern of the cultural environment are examined in their areal and national groupings. Semester Hours: 4, fall or spring.

Econ 202. Economic Principles and Problems: Emphasizes economic principles and problems applicable to the mixed enterprise system of the United States. Concentrates on the following: the institutions and behavior patterns of various economic sectors represented in the national product accounts and use of the accounts as an analytical tool; the theory and mechanics of national income determination, fluctuation, and stabilization; the role of pricing practices in the United States; and the theory and mechanics of international trade. Semester Hours: 2½, fall or 3, spring.

Econ 311. Economics of National Security: A continuation of Econ 202. Primarily concerned with selected problems of a public policy nature that affect specific economic sectors; the elements of U. S. economic conflict with the USSR; the economic foundations of U. S. security; and alternative approaches to solution of basic economic problems. Prerequisite: Econ 202. Semester Hours: 2½, fall or 3, spring.

Enrichment Courses

Econ 271. Managerial Accounting: Study of basic accounting, advancing to financial statement analysis, effects of price level changes, flow of funds, internal accounting controls and reports, introduction to cost accounting, budgeting, control of decentralized operations through accounting, and use of quantitative techniques as an aid to decision making. No prerequisites required. Semester Hours: 2½, fall or 3, spring.

Econ 353. International Economics: Survey of the nature and methods of international trade with emphasis in the following areas: the accounting system of the balance of international payments; the theory of international trade; the adjustment of international disequilibrium; the operation of foreign exchange markets; the implications of tariff protection, import quotas, and other governmental commercial policy devices. Special emphasis is given to the problems of free world survival. Includes an introduction to theories of economic development. Prerequisites: 3 semester hours Econ 202, or Econ 202 and Econ 311. Semester Hours: 2½, fall.

Econ 362. Economics of Defense Management: Examination of the revenue, expenditures, and debt management activities of government; the fiscal policy, economic, and equity effects of these activities. Relation of these principles and findings to defense economics in terms of national security expenditures and their structural (business) and economic impacts. Prerequisite: Econ 202. Semester Hours: 3, spring.

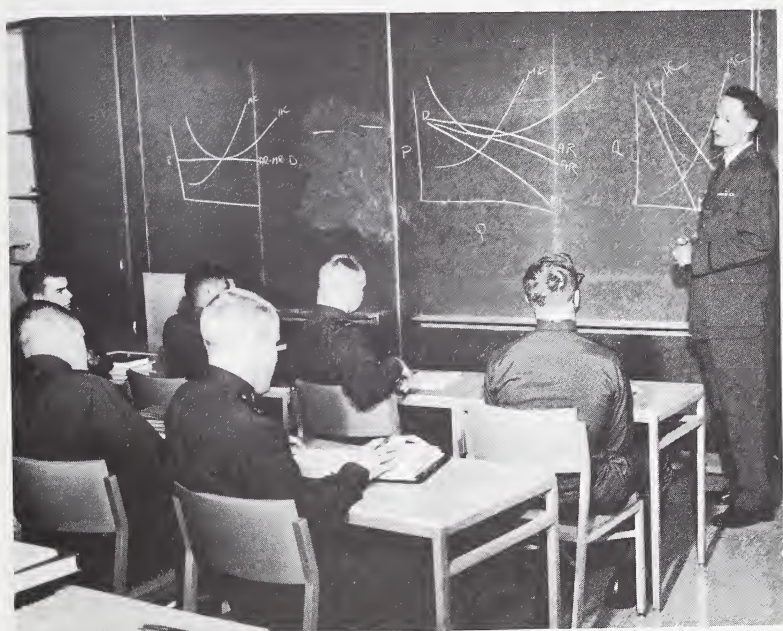
Econ 371. Price Theory: Emphasizes the principles of product and factor pricing, resource allocation, resource employment, and implications of market structure. Prerequisite: Econ 202. Semester Hours: 2½, fall or 3, spring.

Econ 451. Economics of the Soviet Bloc: Investigation of the underlying assumptions, principles, and structure of various economies in the Soviet Bloc. Includes an overview of these economies with regard to centralized command and economic strategy. Analysis of the various physical settings, availability and distribution of major natural resources, and composition of population. Prerequisite: Econ 202. Semester Hours: 2½, fall.

Econ 452. Economic Problems of the Developing Areas: Introduction to the general theory and policies of economic development. Exam-

ines the classical and modern theories of development. Treats the problems involved in accelerating development in emerging countries and maintaining development in advanced countries. Attention is given to domestic and international policy issues and the prospects for general economic development. Prerequisites: 3 semester hours Econ 202, or Econ 202 and 311. Semester Hours: 3, spring.

Econ 453. American Economic Problems: Examination of the theoretical principles and historical structure of North American economic patterns. An overview of the physical scene, distribution



of natural and human resources, and investigation of occupancy patterns in response to locative and economic pressures. Through industrial, resource, and urban micro studies, spotlights current economic development problems. Prerequisites: Econ 202 and 311, Geog 141 or equivalent. Semester Hours: 2½, fall.

Econ 454. European Economic Problems: Examination of the theoretical principles and historical structure of European economic patterns. Prerequisites: Econ 202 and 311, Geog 141 or equivalent. Semester Hours: 2½, fall or spring.

Econ 461. Quantitative Methods: Combines rigorous microeconomic analysis with basic quantitative tools to provide solutions to specific resource allocation problems. Among the subjects included are frequency distributions, correlation, time series, input-output, linear programming, and decision theory. Prerequisites: Econ 202 and 311. Semester Hours: 2½, fall.

Econ 464. Investment Analysis: Introduction to the various investment media: life insurance, all types of bonds, preferred stock, common stock, investment companies (funds), commodities, and real estate. The characteristics, methods of analysis, and investment merits of each media are studied. Examines the practical aspects of investing, such as security exchanges, buying and selling securities, using a broker, income tax considerations, individual investment program, and use of trusts. Prerequisite: Econ 202. Semester Hours: 3, spring.

Econ 471. Quantitative Methods I: Provides experience in the employment of basic concepts of mathematical statistics, rigorous problem formulation, data collection and preparation, empirical estimation, and interpretation of results useful in analysis of defense problems. Emphasis is on the development of basic skills applicable over a wide range of problem-solving situations. No prerequisites required. Semester Hours: 2½, fall.

Econ 472. Quantitative Methods II: Develops comprehension of modern decision making tools available to the manager. Includes such tools as electronic data processing, linear programming, operations research, operations analysis, computer use, and the program evaluation and review technique. Prerequisite: Econ 471. Semester Hours: 3, spring.

Econ 475. Managerial Economics: Integration of theoretical management concepts with various areas of defense management. Consideration given to marginal rates of substitution, optimization, diminishing returns and returns to scale, capital budgets, and weapon system analysis. Prerequisite: Econ 472. Semester Hours: 2½, fall.

Econ 476. Seminar in Defense Analysis: Evaluation of topics in defense analysis. Emphasis is on reading and analyzing actual defense situations and case studies. A final seminar provides practical application of management theories and techniques. Prerequisite: Econ 475. Semester Hours: 3, spring.

Econ 551. Intermediate Economic Theory I: Provides a thorough knowledge of the concepts and issues of modern economic analysis. Emphasis is on substantive economic theory. Prerequisites: Econ 202, Econ 311, and one Econ enrichment course other than Econ 463 or 464. Semester Hours: 3, fall.

Econ 552. Intermediate Economic Theory II: The objectives and emphasis are the same as for Econ 551. Prerequisite: Econ 551. Semester Hours: 4, spring.

Econ 553. Economic Development: Theory and Determinants: A detailed investigation of the determinants of sustained economic growth. A thorough theoretical background is provided by a study of the development theories of the Classical, Neo-classical, Keynesian, and post-Keynesian schools. A consideration of current economic developmental factors emphasizing the maintenance and/or acceleration of economic growth which influence the economic and military alignment of developing areas. Prerequisites: Econ 202, Econ 311, and one Econ enrichment course other than Econ 463 or 464. Semester Hours: 2½, fall.

Econ 554. Economic Development: Growth and Change in Developing Areas: The objectives and emphasis are the same as for Econ 553. Prerequisite: Econ 553. Semester Hours: 3, spring.

Department of Law

Professor and Head of Department: Col. Christopher H. Munch

Associate Professors: Lt. Col. Kinevan; Maj. Fahrney

Assistant Professors: Lt. Col. Hamblen; Majs. Bruton, Kratochvil, Matthis

Instructors: Lt. Col. Hamilton; Maj. Thomas; Cpts. Charles, Cunningham, Kirkman, Terry

Prescribed Courses

Law 311. Introduction to Law: Principles of elementary law including contracts, torts, agency, property, and negotiable instruments and persons. Prerequisites: Second Class standing, or Pol Sci 201, Econ 202, and Third Class standing. Semester Hours: 2½, fall.

Law 312. Introduction to Law: Principles of criminal law, criminal evidence, jurisdiction, conflicts of laws, international law of the

armed forces abroad, and personal estate planning. Prerequisite: Law 311. Semester Hours: 3, spring.

Enrichment Courses

Law 451. American Constitutional Law: Presents the American constitutional doctrine by a study of selected Supreme Court cases. Subjects considered include: the Federal system, judicial review, interstate and foreign commerce, powers of the national government, retroactive laws, police power, due process and equal protection, and civil rights. Prerequisites: Second Class standing, or Third Class standing and Pol Sci 201. Semester Hours: 2½, fall or 3, spring.

Law 461. International Law: A foundation in public international law including its origin, enforcement, and trends. Subjects considered include: territorial jurisdiction, international crimes, treaties, air law, space law, law of the sea, Geneva Conventions, International Court of Justice, and legal status of international organizations. Prerequisites: Second Class standing, or Third Class standing if enrolled concurrently in Law 311. Semester Hours: 2½, fall.

Law 462. Government Contracting: A study of the procurement system of the Department of Defense. Covers methods of procurement, types of contracts employed, fiscal limitations, labor standards, taxation of contractors, small business preferences, contract modifications and terminations, subcontracting, and settlement of contract disputes. Prerequisite: Law 311. Semester Hours: 3, spring.

Department of Political Science

Professor and Head of Department: Col. Wesley W. Posvar

Associate Professors: Lt. Col. Rechtschaffen; Majs. Osato, Scowcroft; Capts. Pustay, Rosser

Assistant Professors: Wg. Cmdr. Walsh; Majs. Green, Konigsberg; Capts. Freeman, Holtzclaw, Karam, Masson, Pinckney, Poirier, Puryear, Ries, Tatum

Instructors: Capts. Anderson, Albright, Coble, Daleski, Dowell, Garvey, Smith, Wallace; 1st. Lt. Ronhovde

Prescribed Courses

Pol Sci 201. American National Government: Theory, development, functions, and organization of government of the United States.

Executive, legislative, and judicial branches are studied in terms of their nature, structure, powers, and procedures. An examination is made of the theory and basic institutions of American democracy, including the Constitution, federalism, separation of powers, civil and political rights, and the party system. Particular attention is given to contemporary issues in American politics. Semester Hours: 2½, fall or spring.

Pol Sci 202. Contemporary Foreign Governments: A comparative study of political systems, the way in which they function, and the historical, social and other factors which account for similarities and differences. An examination is made of the following countries: Great Britain, France, West Germany, the Soviet Union, Communist China, Japan, and India. In the spring semester, the political systems of emerging states are analyzed in areas studies of Southeast Asia and Latin America. Prerequisite: Pol Sci 201. Semester Hours: 3, fall or spring.

Pol Sci 411. International Relations: An analysis of contemporary patterns of conflict and cooperation among the nation-states of the world. Leading theories and concepts of international relations are examined to explain and predict the actions and interactions of states. Major emphasis is given to the characteristics of the nation-state system, the instruments of national policy, and the controls of inter-state relations. The participation of the United States in world affairs is treated by a survey of American foreign policy. Prerequisite: Pol Sci 202. Semester Hours: 2½, fall or 3, spring.

Pol Sci 412. Defense Policy: An analysis of the relationships among military policy, foreign policy, and national security policy. The environment for formulation of defense policy is examined in terms of external threats, the American political climate, and the impact of military technology. The institutional machinery for making strategy is analyzed with emphasis on resource allocation in military planning and the utility of analytical techniques for investigating force requirements. Substantive issues of strategy are evaluated including deterrence, the roles of active and passive defense, arms limitation, internal defense problems, and collective defense. Prerequisite: Pol Sci 411 or 463. Semester Hours: 2½, fall or 3, spring.

Enrichment Courses

Pol Sci 351. Political Parties and the Democratic Process: Primary emphasis is placed on the roles and activities of political parties and interest groups in an examination of the dynamic interaction between legislative and executive functions in the American governmental process. By intensive use of the case study method, a thorough analysis is made of the complex facets of policy making and policy implementation. Prerequisite: Completed or enrolled in Pol Sci 201. Semester Hours: 2½, fall.

Pol Sci 352. Political Theory: A critical study of the mainstreams of political thought which are basic to the understanding of national and international political movements and governmental actions. The development of constitutional thought as well as absolutist and totalitarian thought is traced from Greek antiquity to the present. The relationship between basic theoretical assumptions and concepts of government such as community, justice, freedom, order, law, and rule. Prerequisite: Completed or enrolled in Pol Sci 201. Semester Hours: 3, spring.

Pol Sci 354. International Organization and Military Security Systems: An analytical study of international organization, focusing upon the United Nations' role in the mainstream of international politics. Institutional arrangements and processes of the six major organs of the United Nations are discussed with emphasis upon the shifting sources of power within the organization. An analysis is made of the regional security systems (e.g. NATO, SEATO, OAS) with regard to their purpose, structure, and major problem areas. Prerequisites: Completed or enrolled in Pol Sci 202. Completion of or enrollment in Pol Sci 411 is desirable but not mandatory. Semester Hours: 2½, fall.

Pol Sci 452. The Soviet Union and the East-West Conflict: An analytical study of world Communism with emphasis on the Soviet Union and its role in international politics. A comprehensive study of Communist ideology and its interrelation with power. The policy-making machinery and the foreign policy of the Soviet Union are investigated using a functional approach to develop an understanding of the major patterns of East-West relations throughout the world. Prerequisites: Completed or enrolled in Pol Sci 202 or Hist 232.

Completion of or enrollment in Pol Sci 411 is desirable but not mandatory. Semester Hours: 3, spring.

Pol Sci 453. Problems in the Developing Areas: An analysis of the complex process of change in the developing areas. The interaction of many factors are considered including: cultural background, colonialism, nationalism and other ideologies, changes in social structure and economic requirements, the politics of change, population problems, Cold War pressures and guerrilla movements, and the psychological consequences of modernization on traditional societies. Prerequisite: Pol Sci 202. Semester Hours: 2, fall.

Pol Sci 454. Politics of the European Community: A critical examination of the political developments in Western Europe from the Marshall Plan to the present. The potentialities of a united Europe as a "third force" are analyzed through a consideration of both institutional elements and political strategies of the Western European nations. Prerequisite: Pol Sci 202. Semester Hours: 3, spring.

Pol Sci 462. The Formulation of Military Strategy: An introduction to the study and formulation of military strategy. Emphasis is placed on the development and use of conceptual tools for analysis and decision-making, the policy-making machinery and process, roles of experts and interest groups in defense decision-making, the planning function, and alternative national strategies. The topics include systematic treatment of strategy as it relates to policy, resources, intelligence, technology, procurement, force deployment and structure. Individual cadet study and analysis are facilitated by participation in a Strategic Analysis and Force Evaluation game. Prerequisite: Offered in place of Pol Sci 412 to those cadets who have completed Pol Sci 411 or 463, and have a cumulative GPA of 3.0. Semester Hours: 3, spring.

Pol Sci 463. The International Political System: An examination of the international political system through a survey of core materials, concepts, and analytical tools. A comparative analysis is made of the foreign policies of major powers. Prerequisites: Offered in place of Pol Sci 411 to those cadets who have completed Pol Sci 202 and have a cumulative GPA of 3.0. Semester Hours: 2½, fall.

Pol Sci 561. Contemporary Political Theory: An intensive analysis of the development and content of contemporary political theory and

ideology. Includes the intellectual tools which contemporary theorists employ and the conclusions they reach, selected concepts developed by contemporary theorists, and discussion of contemporary ideologies. Prerequisites: Pol Sci 352 and permission of the department. Semester Hours: 2½, fall.

Pol Sci 563. International Politics: Theories and Concepts: A general review of the disciplines, methodology, and problems of research in the social science area, followed by an examination of international relations theories with emphasis on approaches currently being advanced and tested in the field of international politics. Prerequisites: Completed or enrolled in Pol Sci 411 or 463 and permission of the department. Semester Hours: 3, fall.

Pol Sci 564. International Politics: Problems in the Maintenance of Security: A comprehensive analysis of the major sources of international conflict. An interdisciplinary approach is used to emphasize the complex nature of conflict in the world today, contrasting the works of authorities in many fields with the traditional explanations of international relations specialists. Each member of the seminar undertakes a detailed investigation of a specific source of conflict and its possible resolution, or a topic dealing with a general approach to conflict resolution. Prerequisites: Completed or enrolled in Pol Sci 411 or 463 and permission of the department. Semester Hours: 4, spring.

Pol Sci 572. Government and Politics in the Soviet Union: An intensive study of government and politics in the Soviet Union. The methods of political control of government and society are investigated. Special attention is given to industrial and agricultural development and to political control of the military hierarchy. Procedures for handling problems of nationalism, federalism, cultural, and individual life are analyzed. For purposes of contrast, Yugoslavian government and politics are evaluated. Prerequisites: Pol Sci 202 and permission of the department. Pol Sci 452, Hist 232, and Econ 453 are desirable but not mandatory. Semester Hours: 3, spring.

CLASS	CURRENT STRENGTH	ENRICHMENT PARTICIPATION		BASIS OF PARTICIPATION		OVER LOAD ONLY	
		SUBSTITUTE & OVER LOAD NO.	%	NO.	%		
1961	511	267	77	197	39		
1962	553	294	71	257	47		
1963	677	523	77	255	38		
1964	727	540	74	261	36		
WING	2478	1824	74	970	39		
		UNDER GRADUATE EX ELEC	SUB	GRADUATE EX ELEC	SUB		
AERODYNAMICS		26	326	6	13		
ASTRONAUTICS		15	284				
			42				
ELECTRICAL ENGINEERING			212	6	12		
ENGLISH		47	265	1			
FOREIGN LANGUAGES		75	353				
HISTORY		32	75				
LAW		22	121				
MATHEMATICS		47	97	1	5		
MECHANICS		131	740				
NAVIGATION		240	418				
PHYSICS		9	6				
PHYSICAL SCIENCE		49	269				
TOTAL		78	281				
		1040	3779	11	9		

UNDERGRADUATE MAJORS

Through the enrichment program, the Academy offers majors in five undergraduate subject areas: International Relations, Management, Basic Sciences, Engineering Sciences, and Mathematics. The majors are designed to enhance the cadet's knowledge in his chosen subject area and to contribute to the effectiveness of his career as an Air Force officer. A major is particularly recommended for cadets who desire to prepare for graduate study.

Cadets majoring in a subject area must meet prescribed course requirements in addition to selected enrichment courses. They may validate certain prescribed courses and take selected enrichment courses of greater depth and difficulty in lieu of the prescribed. Other enrichment courses are required in addition to all prescribed courses in the respective fields of study.

The enrichment course requirements for each major are as follows:

MAJOR IN INTERNATIONAL AFFAIRS

Hist 351	US Diplomatic History
Pol Sci 352	Political Theory
Pol Sci 354	Int Org & Mil Sec Systems
Beh Sci 355	Sociology
Econ 353	International Economics
Law 461	International Law

In addition to the above required courses, a course area concentration in either the Soviet Bloc, Europe, Latin America or the Far East must be completed. Each area concentration consists of the prescribed history course in that area, plus one enrichment course in foreign language, one in economics, and one in political science which pertain to the area.

MAJOR IN MANAGEMENT

Beh Sci 352	Social Psychology
Beh Sci 353	Industrial Psychology
Law 462	Government Contracting
Econ 271	Managerial Accounting
Econ 371	Price Theory
Econ 471	Quantitative Methods I
Econ 472	Quantitative Methods II
Econ 475	Managerial Economics
Econ 476	Seminar in Defense Analysis

MAJOR IN BASIC SCIENCES

Math 151	Statistics
Math 251	Differential Equations
Chem 353	Theoretical Inorganic Chemistry
or	
Chem 351-52	Physical Chemistry I and II
or	
Chem 253-54	Organic Chemistry I and II
Phys 452	Principles of Modern Physics
Phys 453	Principles of Nuclear Physics
Phys 454	Neutron Physics

In addition, four elective courses are required which must be selected from the following: Math 361, Math 352, Phys 455, Phys 457, Phys 551, Phys 552, Chem 351, Chem 352, Chem 253, Chem 254, Biol 360, Biol 361, Biol 362, Physiol 451, Astro 452, Astro 454, Chem 551.

MAJOR IN ENGINEERING SCIENCES

The following enrichment courses should be taken as substitutes for the prescribed:

Math 161	Calculus and Analytic Geometry
Math 162	Calculus, Analytic Geometry, and Intro to Differential Equations
Phys 452	Principles of Modern Physics
Aero 351	Thermodynamics
Aero 361	Fluid Dynamics I
Aero 362	Fluid Dynamics II
Aero 461	Propulsion and Performance
EE 361	Circuit Analysis
EE 362	Intermediate Electronics
EE 455	Electronics and Electromagnetic Radiation
Mech 361	Engineering Mech, Vectors
Mech 362	Mechanics of Materials
Science 350	Electro-Mech Systems Lab
Astro 451	Astrodynamics
Astro 453	Space Technology

The following additional enrichment courses must be completed:

Math 251	Differential Equations
Math 352	Digital Computer Programming and Beginning Numerical Analysis
Phys 453	Principles of Nuclear Physics
Aero 363	Heat Transfer
Mech 355	Applications of Solid State
Aero, EE, Mech or Astro 464	Design

The academic option periods in the First Class year will be filled with the following:

Astro 452	Linear Control System Analysis
Astro 454	Ballistic and Space Vehicle Guidance

In addition, one elective from the following list must be taken:

Aero 463	Advanced Topics in Aeronautics
EE 453	Analog Computation
EE 454	Linear Systems Synthesis
Mech 451	Fundamentals of Aerospace Structures
Mech 454	Adv. Dynamics and Vibrations
Mech 455	Principles of Materials

MAJOR IN MATHEMATICS

Math Sequence 101, 102, 201, 202

or

Math Sequence 161, 162

Math 251 Differential Equations

Math 361 Matrix Vector Analysis

Math 456 Advanced Calculus

Math 553 Introduction to Complex Variables and Applications

Math 554 Fourier Series and Analytic Probability

In addition, two elective courses are required which must be selected from the following:

Math 151 Statistics

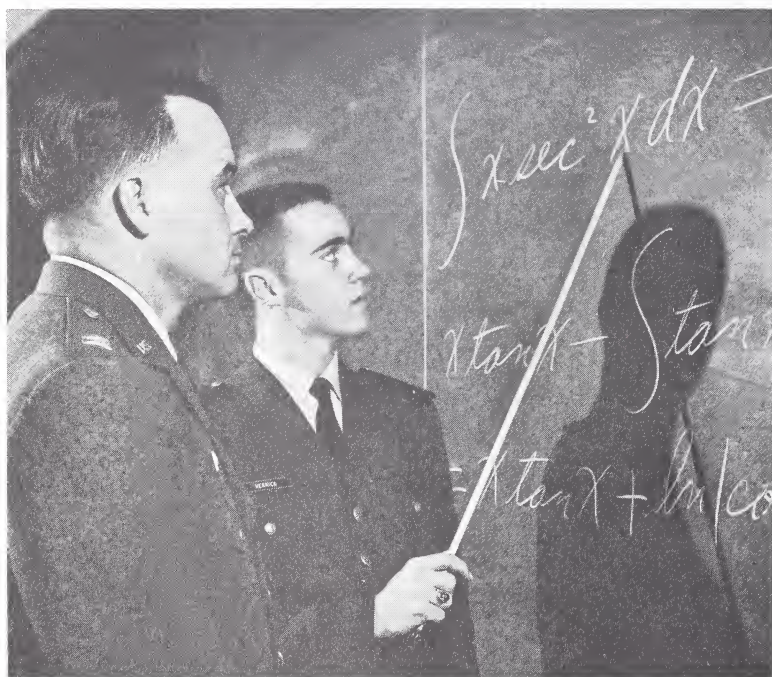
Math 352 Digital Computer Programming and Beginning Numerical Analysis

Math 455 Modern Algebra

Math 474 Research

Math 551 Numerical Analysis

NOTE: It is anticipated that additional majors will be added to the curriculum in the near future.



MASTER'S PROGRAM

The Air Force Academy has cooperative arrangements with certain civilian universities whereby selected cadets may earn master's degrees from these universities within seven months after their graduation from the Academy. Master's degrees may be earned in two fields: International Affairs and Astronautics. A cadet who chooses the International Affairs area may major either in Economics or Political Science.

INTERNATIONAL AFFAIRS

Cadets selected to participate in the master's program with a major in Political Science must complete the following courses:

Seven prescribed-curriculum courses in political science, economics, and geography listed below:

Pol Sci 201	American National Government
Pol Sci 202	Contemporary Foreign Governments
Pol Sci 411	International Relations
Pol Sci 412	Defense Policy
Econ 202	Economic Principles and Problems
Econ 311	Economics of National Security
Geog 141	Introduction to World Geography

A minimum of six undergraduate enrichment courses including:

Pol Sci 352	Political Theory
Pol Sci 354	International Organization and Military Security Systems

two of the following three courses:

Hist 351	U.S. Diplomatic History
Law 461	International Law
Econ 353	International Economics

and two additional undergraduate enrichment courses in political science. A minimum of four master's-level courses including:

Pol Sci 561	Contemporary Political Ideas
Pol Sci 563	International Politics: Theories and Concepts
Pol Sci 564	International Politics: Problems in the Maintenance of Security
Pol Sci 572	Government and Politics in the Communist Bloc

Cadets selected to participate in the master's program with a major in Economics must complete the following courses:

Seven prescribed-curriculum courses in economics, geography, and political science listed below:

Econ 202	Economic Principles and Problems
Econ 311	Economics of National Security
Geog 141	Introduction to World Geography
Pol Sci 201	American National Government
Pol Sci 202	Contemporary Foreign Governments
Pol Sci 411	International Relations
Pol Sci 412	Defense Policy

A minimum of six undergraduate enrichment courses including:

Econ 353	International Economics
Econ 461	Quantitative Methods
Hist 351	U.S. Diplomatic History
Law 461	International Law

and two additional undergraduate enrichment courses in economics. The Department of Economics strongly recommends that these two courses be Econ 371 and Econ 471.

A minimum of four master's-level courses including:

Econ 551	Intermediate Economic Theory I
Econ 552	Intermediate Economic Theory II
Econ 553	Economic Development: Theory and Determinants
Econ 554	Economic Development: Growth and Change in Developing Areas

ASTRONAUTICS

Cadets selected to participate in the master's program in Astronautics must complete the following requirements:

Two mathematics courses listed below must be completed by every candidate:

Math 361	Matrix Vector Analysis
Math 452	Advanced Engineering Math II

The three courses with the single asterisk from the list below must be completed by every candidate. Cadets able to complete

more than five courses are strongly encouraged to take the courses designated with a double asterisk.

*Aero 463	Advanced Topics in Aeronautics
El Eng 453	Analog Computation
**El Eng 456	Advanced Communications and Electromagnetic Radiation
Math 451	Advanced Engineering Math I
*Math 551	Introduction to Numerical Analysis
Mech 451	Fundamentals of Aerospace Structures
Mech 454	Advanced Dynamics and Vibrations
**Aero 551	Dynamics of Flight
Aero 552	Experimental Techniques in Engineering Science
*Astro 551	Advanced Astronautics
El Eng 551	Servomechanism Analysis and Synthesis
Mech 551	Advanced Aerospace Structures
Mech 552	Vibrations of Aerospace Structures
**Sci 571	Space Propulsion Systems

LECTURE PROGRAM

The visiting lecture program is an integral part of the course of instruction in all academic departments. The following is a list of distinguished lecturers who spoke to the cadets during the 1963 academic year and some of the lecturers scheduled during 1964.

Basic and Engineering Sciences

- Dr. R. C. Seamons, Jr., National Aeronautics and Space Administration, "NASA Programs"
- Col. E. N. Hall, USAF (Ret), United Aircraft, Hartford, Conn., "History of the Minuteman"
- Mr. F. Dolder, Ball Brothers Research Corp., Boulder, Colo., "Orbiting Solar Observatory"
- Mr. William Denhard, Massachusetts Institute of Technology, "Current Gyro Developments"
- Dr. Burwell Taylor, Canadian Medical Defense Center, Toronto, Canada, "Special Disorientation"
- Dr. May Oldem, Headquarters USAF, "Mathematics — the Language of the 20th Century"
- Mr. Bob Gower, Mr. Henry Roberts, Douglas Aircraft, Long Beach, Calif., 'Aerospace Planes and Research on Variable Sweep Wing"

- Dr. John Bond, Kaman Nuclear Corp., Colorado Springs, Colo., "Use of Atomic Weapons for Ballistic Missile Defense"
- Dr. George Gamow, University of Colorado, "The Nature of Star Energy"
- Dr. L. Trilling, Massachusetts Institute of Technology, "Soviet Education"

Social Sciences and Humanities

- Mr. J. J. Reynolds, Assistant Secretary for Labor, "Labor-Management Relations"
- Col. Gabriel Ofiesh, Randolph AFB, Texas, "Modern Marriage and the Cadet"
- Dr. Herbert Modlin, The Menninger Foundation, Topeka, Kansas, "Psychoanalytic Theory and Technique"
- Dr. John Springer, Rand Corp., Santa Monica, Calif., "Operations Analysis"
- Dr. Meno Lovenstein, Ohio State University, "Economics of Permanent Defense"
- Mr. Stanley Ruttenberg, U. S. Department of Labor, "Current Economic Issues in the Labor Movement"
- Dr. Frank Vandiver, Rice Institute, "General Pershing and the Anatomy of Leadership"
- Col. W. W. Fertig (Ret), Colorado School of Mines, "Guerrilla Warfare"
- Dr. Albert E. Burke, Television Public Affairs Commentator, Cheshire, Conn., "Communism and Southeast Asia"
- Mr. C. W. Hawley, Martin Aircraft, Denver, Colo., "Contract Problems Common to Industry and Government"
- Mr. Theodore Miller, Stanley Aviation, Denver, Colo., "Government Contracts"
- Mr. E. C. Soistman, Martin Aircraft, Orlando, Fla., "Operation of a Defense Plant"
- Mr. Paul Chretien, Central Intelligence Agency, "The United States Intelligence Community"
- Mr. Solis Horwitz, Department of Defense, "Organization of DOD: The Requirement of Centralization"
- Col. Hubert M. Childress, Headquarters USAF, "NATO Strategy"
- Mr. Richard Boyle, Vienna, Virginia, "Alternative Weapons Concepts"

- Mr. A. K. Ray, Indian Embassy, "Current Indian Problems"
Col. N. Vinh, South Vietnam Air Force, "Counterinsurgency"
Mr. M. Victor Gares, French Consul, "DeGaulle and French Government"
Mr. A. Gaspiron, AFL-CIO, "The Role of Labor in American Society"
Mr. Oliver Caldwell, Assistant Commissioner for International Education, "Education Techniques in the USSR"
Mr. Alf Kudiwa, foreign student from Southern Rhodesia attending the University of Colorado, "Southern Rhodesia"
Mr. Abedrego Ogn'om, foreign student from Uganda attending the University of Colorado, "Uganda"
Mr. W. Sueskind, Munich, Bavaria, "German Affairs"
Congressional panel composed of: Senators Margaret Chase Smith of Maine and Quentin N. Burdick of North Dakota; Representatives George Miller of California and Walter Norblad of Oregon
Col. William G. McDonald, Headquarters USAF, "Organization of the Department of Defense"
Dr. Herman Kahn, Hudson Institute, "Problems of Thermonuclear War"

THE AIR FORCE ACADEMY ASSEMBLY

The Fifth Air Force Academy Assembly was held 3-6 April 1963. Students from colleges and universities throughout the nation participated in the round-table discussions on the general topic "The Responsibilities of the Secretary of State."

Secretary of State Dean Rusk addressed the opening session of the Assembly in Arnold Hall. Cadets, faculty members and guests attended in addition to the Assembly delegates. Members of the State Department who accompanied Secretary Rusk and participated in the Assembly were:

Special Advisor Llewellyn Thompson
Deputy Under Secretary U. Alexis Johnson
Assistant Secretary Robert Manning
Ambassador John Jernegan
Deputy Assistant Secretary Jeffrey Kitchen
Special Assistant Ernest H. Lindley
Director of International Scientific Affairs Ragnar Rollefson
Special Assistant Emory C. Swank



THE AIR FORCE ACADEMY LIBRARY

Director of the Library: Col. George V. Fagan

The Academy Library provides a well-balanced reference and reading collection in direct support of the educational mission of the Academy. It maintains all material usually found in leading liberal arts and engineering colleges and universities. Through carefully planned growth and the receipt of numerous gifts, the Library is expanding its reference and research collection in all areas. Emphasis is being placed in the fields of aerospace power and aeronautical history. A special collection of unique and rare items pertinent to the growth and development of the Air Force Academy is being developed.

Ultimately the Library collection will exceed 300,000 volumes. At present more than 195,000 items line the open shelves of the Library. The periodical reading section contains current issues of over 1,300 magazines and newspapers from all parts of the United

States and overseas. Almost 20,000 bound volumes of periodicals with appropriate indexes are available for reference and research. The map reference room contains 10,000 maps and atlases.

Covering more than 78,000 square feet of floor space, the Library occupies the largest portion of the north wing of Fairchild Hall, the academic building. A soaring spiral staircase provides the main access to the three floors of the Library. Eight hundred patrons, one third of the Cadet Wing, can be seated at one time. On the balcony overlooking the main reading room are study carrels for those cadets of the First Class who have attained the Superintendent's Merit List. Individual nameplates are affixed to each carrel as a means of recognition for outstanding scholarship and leadership.

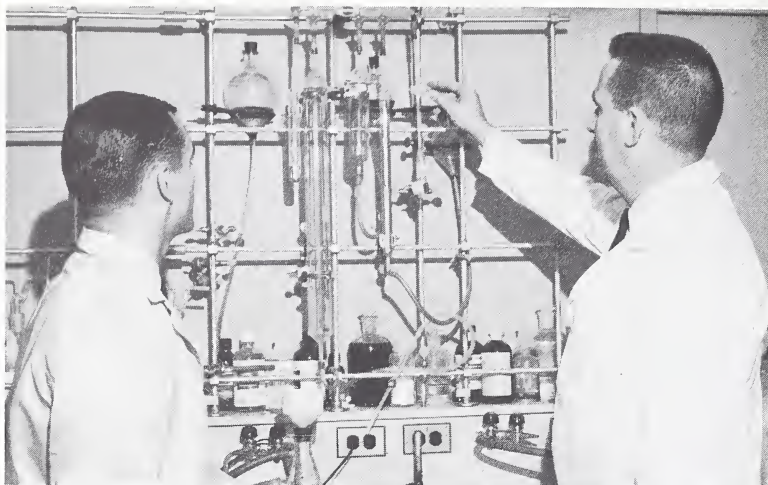
The Library is utilized by a number of Government agencies as a source for scientific and technical report literature and for extended research by the faculty. The Library is a selective depository for United States Government documents and United Nations documents. Included in the Library holdings are a microfilm collection and a vertical file of pamphlet series, brochures, and similar materials directly related to all aspects of the curriculum. Special bibliographies in many subject areas and periodic annotated listings of current acquisitions are published by the Library in conjunction with the academic departments.

Personnel in the Academy Library teach the following courses to new cadets during the fall of their Fourth Class year. No credit is given for these courses.

Libr 101. Academic Skills: A required course covering library orientation, such as use of the card catalog, periodical and newspaper indexes, technical reports and government documents; organization of study time, note taking, and lesson preparation.

Libr 102. Reading Improvement: A required course in basic and accelerated reading skills with application to specific curricular areas offered at the Academy.

Libr 103. Basic Typing: A voluntary course in basic typing limited to skills needed for typing themes, reports, military and personal correspondence. Prerequisite: Semester or cumulative GPA of 2.6.



RESEARCH PROGRAM

The Frank J. Seiler Research Laboratory

Commander: Col. Richard C. Gibson

The Frank J. Seiler Research Laboratory at the Air Force Academy was dedicated on 9 October 1963, during the Tenth Annual Science and Engineering Symposium held at the Academy. The new laboratory is named in memory of the late Colonel Frank J. Seiler, an Air Force research pioneer. The mission of the laboratory is to conduct research in chemistry and in the applications of mathematics to the solution of aerospace and astronautics problems. The laboratory is one of three operated by the Office of Aerospace Research, the agency which is responsible for all Air Force basic scientific research. It provides a means for supporting faculty and cadet research and disseminating the results. A resident staff of 15 research scientists works closely with faculty members and cadets in projects of mutual interest. A large digital computer has been installed for use by the laboratory staff, faculty, and cadets, and other scientific equipment is being added as it is needed.

Faculty Research

Assistant Dean for Research: Maj. Philip J. Erdle

Assistant Dean for Graduate Programs: Capt. Edgar F. Puryear

The faculty research program is designed to keep faculty members current in their special fields and to provide an opportunity for

research to a limited number of cadets in the enrichment and graduate programs. Ten faculty officers are assigned to perform full-time research in the sciences, social sciences, and humanities. Intra-departmental research projects are conducted by many other faculty members in addition to their instructional duties. During summer months, the professional capabilities and special skills of the faculty are utilized in a consultant program through which the services of well qualified faculty officers are made available to other Air Force Commands.

ACADEMIC SERVICES

Academic Counseling

Counselors: Maj. George E. Yale, First Class; Maj. Malcolm E. Ryan, Second Class; Maj. William J. Thorpe, Third Class; Capt. James E. Banks, Fourth Class

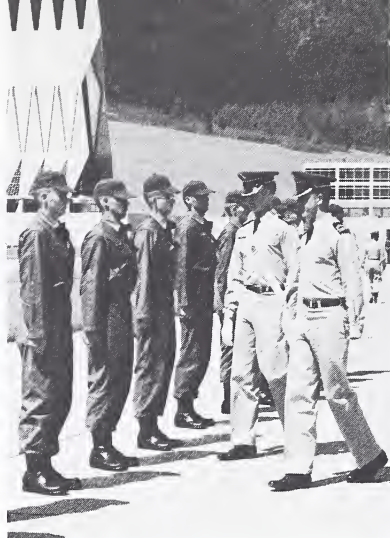
The academic counselors assist the chairmen of class committees in administering matters pertaining to their respective classes. They monitor the work of faculty advisers who counsel cadets on academic programs, scheduling, grade deficiencies, and degree plans. Identification and academic guidance of exceptional students are primary functions of these officers. Cadet participation in the enrichment program is also monitored.

Audio-Visual Services

Director of Audio-Visual Services: Maj. Howard B. Hitchens, Jr.

The Audio-Visual Services Directorate contributes to the support of effective learning and improvement of instruction by providing all instructional departments with a centralized source for the latest teaching materials, aids, and related equipment. Included in this activity are the divisions of Graphics, Training Devices, Film Library, and the Television Center. Among the teaching devices developed are instructional manuals, workbooks, pictorials, charts, models, mockups, slides, films, recordings, live TV presentations, and videotape recordings. The modern classrooms are well equipped for effective use of all types of visual and sound teaching aids.

LEADERSHIP AND MILITARY TRAINING



Commandant of Cadets
Brig. Gen. Robert W. Strong, Jr.

Deputy Commandant of Cadets
COL. JOHN F. DAYE, JR.

The Leadership and Military program prepares and motivates the cadet for a career of leadership as an officer in the United States Air Force.



Directorate of Operations and Training

Director of Operations and Training: Col. James H. Heaberg

(Course directors, instructors, and plans and scheduling officers are listed under the Personnel Directory.)

Leadership and military training provides experience in leadership, promotes professional attitudes, and provides the basic military knowledge required of an Air Force officer. The fulfillment of these objectives is the responsibility of the Chain of Command, both officer and cadet; the Directorate of Operations and Training, encompassing the Divisions of Military Training, Navigation, Plans and Scheduling, Special Activities and the Academy Planetarium.

Military Training Division

Chief of the Military Training Division: Lt. Col. George A. Brown

Prescribed Courses

Mil Tng 100. Basic Cadet Training: Transition from civilian to military life. Indoctrination in the overall Academy program, cadet regulations, the Honor Code, manual of arms, drill, customs and courtesies, and other general military subjects. Introduction to basic Air Force weapons, firing course (M-1 rifle and .38 caliber pistol), and survival training exercise in the Rocky Mountains. Simulated flight in an altitude chamber and the award of aircraft passenger card. Introduction to the care and use of flying equipment and

survival gear. Orientation flights and emergency procedures in the T-29 twin-engine navigation aircraft and the T-33 jet aircraft. Semester Hours: $7\frac{1}{2}$, summer.

Mil Tng 101. Service Orientation I: Instruction to the Fourth Class in the practical application of drill, ethics, and command subjects to cadet life. Semester Hour $\frac{1}{2}$, fall and spring.

Mil Tng 115-116. National Security and the Armed Forces I and II: Study of the national security organization, the military instrument of national power, and the armed forces in preparation for Field Study of the Armed Forces. Semester Hours: $1\frac{3}{4}$, fall and spring.

Mil Tng 200. Field Study of the Armed Forces: Field trip of six weeks within the United States to Army and Navy installations and the combat and support commands of the Air Force. Semester Hours: 4, summer.

Mil Tng 201. Service Orientation II: Provides the Third Class cadet with an insight into important matters that will concern him personally as an Air Force officer such as pay, promotion, education, career planning, and security. Includes instruction in Air Force heritage. Semester Hour: $\frac{1}{2}$ fall and spring.

Mil Tng 215. Contemporary World Forces: Study of the contemporary major world armed forces in preparation for Field Study of Overseas Areas. Semester Hour: $\frac{3}{4}$, fall.

Mil Tng 300. Field Study of Overseas Areas: Field trip of three weeks to pivotal areas in Europe, South America, or the Far East to observe global air power and armed forces. An insight into the various cultures of allied nations is gained through the trip. Semester Hours: $2\frac{1}{2}$, summer.

Mil Tng 301. Service Orientation III: Provides the Second Class cadet with specific information to assist him in planning his Air Force career and in choosing the career area he desires. A seminar on leadership responsibilities is conducted to assist the cadet in effectively applying the basic principles of leadership within the Cadet Wing. Semester Hour: $\frac{1}{2}$, fall and spring.

Mil Tng 302. Military Instructor Training: Prepares the cadet for future instructional duties, particularly to develop the skills he will need to perform his duties as a First Class instructor in the basic cadet training program. Semester Hour: 1, spring.

Mil Tng 310. Duty with an Air Force Unit: Individual assignment to squadron grade position with an operational unit of the Air Force for 2 weeks. Assignment may be at a home base in the United States or overseas. In-service training permits practical application of leadership principles. Semester Hours: 1½, summer.

Mil Tng 311. Employment of Aerospace Power: A study of offensive and defensive employment of the USAF aerospace power. The planning, support, and procedures incident to generating and launching the USAF combat forces. Semester Hours: 1½, fall or spring.



Mil Tng 400. Duty with an Underclass: Preparation for and participation in supervisory and instructional duties of approximately four weeks with the Basic Cadet Training Group; or preparation for and command or staff duty with the Third Class on Field Study of the Armed Forces. Semester Hours: 3, summer.

Mil Tng 401. Service Orientation IV: Provides the First Class cadet with an insight into aspects of service life as a lieutenant through means of seminar discussions with experienced officer instructors and visiting authorities. Gives the cadet practical experience in instruction and group discussion techniques by assigning him to teach

topics in ethics, leadership, and Cadet Wing training subjects to squadron groups of Fourth Class cadets. Semester Hour: 1, fall and spring.

Mil Tng 402. Aerospace Systems: A classified course covering the technical and employment details of aerospace systems. Includes space programs of the National Aeronautics and Space Administration and ballistic missile and space systems of the Department of Defense. Semester Hour: 1, fall or spring.

Airmanship 410. Pilot Orientation: Ten flying hours in light aircraft and ten classroom hours in related ground school subjects. This course will not be conducted in 1964. Future implementation of the course is dependent upon authority for construction of airfield facilities and acquisition of aircraft. Semester Hour: 1½.

Enrichment Courses

Airmanship 450. Pilot Indoctrination: When facilities and aircraft are available at the Academy, 30 hours of light plane flight training will be offered to all First Class cadets who are physically qualified for Air Force pilot training. Any cadet who possesses an FAA Private Pilot Rating may validate this course. The Cadet Aviation Division, an extracurricular activity, currently offers light plane flying to a limited number of cadet volunteers. Credit for Airmanship 450 will be given to cadets for equivalent training with the Cadet Aviation Division. Semester Hours: 2½.

**Airmanship 451. Private Glider Rating:* Dual instruction, ground school and solo flight training to complete the requirements for an FAA Private Glider Rating. Prerequisite: AM 410 or equivalent. Semester Hour: 1.

Airmanship 452. Basic Airborne Training

Cadets may volunteer for a three-week course leading to a parachutist rating at the U. S. Army Infantry School, Fort Benning, Georgia. Semester Hours: 2½, summer.

Airmanship 453. Flight Indoctrination

First Class cadets who are physically qualified may volunteer for

10 hours of flight training conducted at Air Training Command bases in T-37 aircraft. According to current planning, this course will be continued until facilities and equipment are available at the Academy to conduct Airmanship 410 and 450. Semester Hours: 2½, summer.

* *Airmanship 460. Commercial Pilot Rating:* Dual instruction, ground school and solo flight training to complete the requirements for an FAA Commercial Pilot Rating. Prerequisite: AM 450 or FAA Private Certificate. Semester Hours: 3.

* *Airmanship 461. Commercial Glider Rating:* Dual instruction, ground school and solo flight training to complete the requirements for an FAA Commercial Glider Rating. Prerequisite: AM 451 or FAA Private Glider Rating. Semester Hours: 2.

* *Airmanship 471. Flight Instructor Glider Rating:* Dual instruction, ground school and solo flight training to complete the requirements for an FAA Flight Instructor Glider Rating. Prerequisite: AM 461 or Commercial Glider Rating. Semester Hour: 1.

* *Airmanship 480. Flight Instructor's Rating:* Completion of requirements for FAA Flight Instructor's Rating. Prerequisite: AM 460. Semester Hours: 2.

Navigation Division

Chief of the Navigation Division: Lt. Col. William P. Dougan

Prescribed Courses

Nav 110. Introduction to Flying: Introduction to the care and use of flying equipment and survival gear. Orientation flights and emergency procedures in the T-29 twin-engine navigation aircraft and the T-33 jet aircraft. Semester Hours for this course are included in Mil Tng 100.

*These courses will be offered when facilities and aircraft are available. The courses may be validated by possession of these ratings or by equivalent training with the Cadet Aviation Division if available.

Nav 411. Navigation Orientation: Introduction to the basic concepts of navigation to provide an applicable knowledge of fundamental skills. Includes airborne and trainer laboratory periods to augment classroom instruction. Flying training consists of six 5-hour missions in T-29 aircraft. Designed to motivate students toward a flying career and to assure an appreciation of responsibility and requirements of a rated specialty. Cadets must take either Nav 411 or Hist 471 to fulfill requirements of the Airmanship Option. Semester Hours: 2½, fall or spring.

Enrichment Courses

Nav 351. Descriptive Astronomy: The earth as a planet and its motions within the solar system using the planetarium as a laboratory. An understanding of the motions of all members of the solar system including moons, planets, comets, and the sun, and the laws governing these motions. The historical development of astronomy from earliest times to the present. Instruments of measurement and observations, and methods of reducing observations to scientific fact. Semester Hours: 2½, fall or spring.

Plans and Scheduling Division

Chief of the Plans and Scheduling Division: Maj. Leon W. McCrary

This division plans and schedules the following: military training programs including all domestic and overseas field trips, basic cadet training, cadet flying training programs, flight support as required by the curriculum, and training involving other services; cadet activities functions at the Academy and official cadet trips away from the Academy; visits by foreign academy officials. The division maintains operational control over the Air Force Academy Band and the Drum and Bugle Corps.

Special Activities Division

Chief of Special Activities Division: Capt. James A. Turner, Jr.

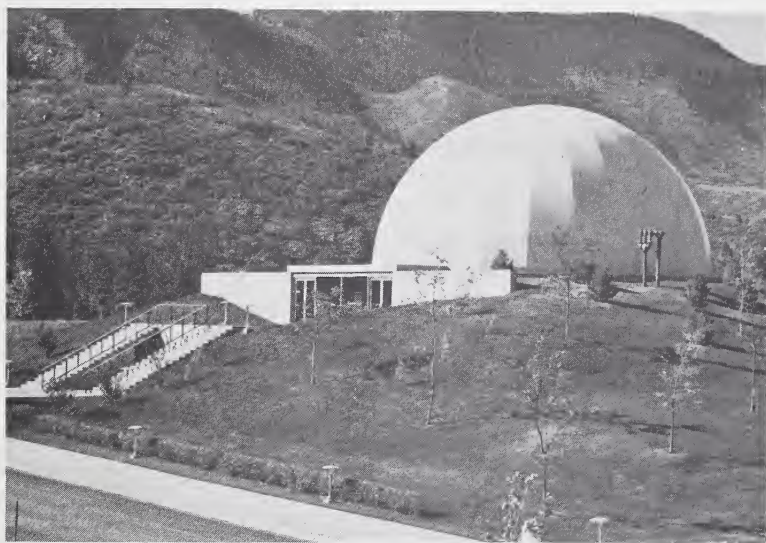
This division is responsible for supervision of cadet recreation including assistance to the Cadet Wing Hostess in planning cadet social functions, arrangements for cadet social activities away from the Academy, and monitoring the Academy Officer Participation

Program in which faculty and staff officers volunteer to entertain cadets in their homes. The division supervises the Allied Arts Society, which arranges cultural entertainment for the cadets, and the Cadet Activities section, which provides guidance and facilities for all cadet extracurricular activities.

The Academy Planetarium

Director of the Planetarium: Lt. Col. Wallace E. Moore

The Planetarium is used to teach celestial theory and star identification to cadets in their study of navigation. The giant multiple



projector of the Planetarium can portray the panorama of the heavens on the building's 50-foot opaque aluminum dome. The instructor operates the projector from a master control board to simulate the effects he desires. The projector can accomplish realistic simulation of numerous movements that take place in the sky such as comets, meteor showers, the northern lights, constellations, sunrise and sunset, and the planets in orbit. All stars visible to the eye, from the brightest to the dimmest, can be duplicated. Also, the stars can be put through rapid changes, such as moving forward or backward in time to show their past or future positions. In addition to using the

Planetarium for cadet instruction, the Planetarium staff presents lectures and demonstrations to members of other educational institutions and the general public.

Cadet Wing Training

(Group and Squadron Air Officers Commanding are listed under the Personnel Directory.)

Training in command and staff functions within the Cadet Wing affords cadets the opportunity to practice leadership techniques and provides them situations for development of character and discipline. Supervision of this program is the responsibility of Group and Squadron Air Officers Commanding. These officers monitor the progress of all cadets assigned to their respective units in every facet of cadet life. Particular attention is given to the guidance, discipline, and motivation of cadets under their command. Military bearing of the cadets is developed through drill, parades, and inspections.



Guest Lecturers

Guest lecturers fulfill an important function in the leadership and military training program. They lend first-hand authenticity to military training courses, the career decision program, and the cadet professional studies group. Guest lecturers for 1963-64 include:

General Thomas S. Power, Commander-in-Chief, Strategic Air Command

General Walter C. Sweeney, Jr., Commander, Tactical Air Command

General Mark E. Bradley, Jr., Commander, Air Force Logistics Command

General Bernard A. Schriever, Commander, Air Force Systems Command

General Joe W. Kelly, Commander, Military Air Transport Service

Lt. Gen. Robert W. Burns, Commander, Air Training Command

Lt. Gen. Herbert B. Thatcher, Commander, Air Defense Command

Maj. Gen. Kenneth P. Bergquist, Commander, Air Force Communications Service Team, Headquarters USAF, Personnel Plans and Programming

Lt. Gen. Jacob E. Smart, Commander, Pacific Air Command

Lt. Gen. Gabriel P. Disosway, Commander, United States Air Forces, Europe

Lt. Gen. Andrew T. McNamara, US Army, Director, Defense Supply Agency

Maj. Gen. Jerry D. Page, Deputy Director of Plans for Aerospace, Hq USAF

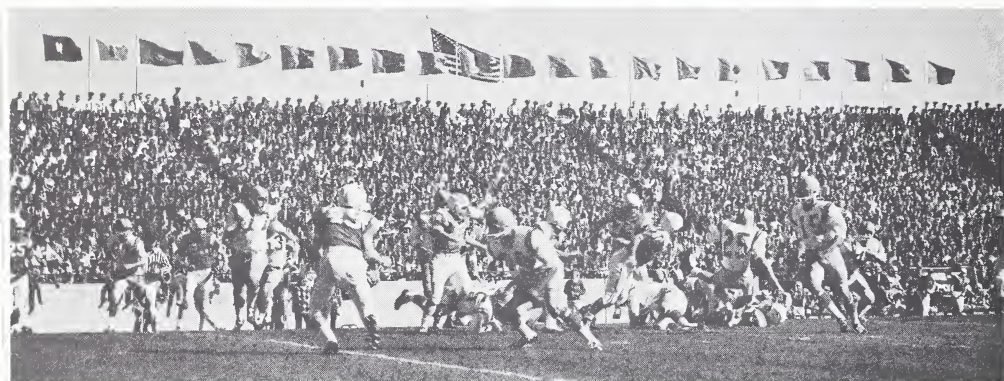
CDR Jack Hawkins, US Navy, Commanding Officer, Gold Crew, U.S.S. Sam Houston

Maj. Robert W. Storm, US Army, Plans Officer, Branch G-3, U. S. Army Air Defense Command

Maj. Virgil I. (Gus) Grissom, USAF, one of the original seven Astronauts

Mr. Alvin M. (Tex) Johnston, Dynasoar Program Project Engineer, Boeing Aircraft Co.

PHYSICAL EDUCATION AND ATHLETICS



Director of Athletics
Col. Edmund A. Rafalko

The program of physical education and athletics is designed to develop leadership characteristics, physical ability, and skills in a variety of sports.



Department of Physical Education

Head, Department of Physical Education: Lt. Col. John S. Sparks, Jr.

(Instructors are listed under the Personnel Directory.)

Physical education includes course instruction and competition in intramural athletics. Each cadet is required to compete either in intramural or intercollegiate athletics during the fall, winter, and spring seasons.

Prescribed Courses

PE 110. Basic Physical Training: Prepares the basic cadet for a strenuous program of physical education and athletics by developing physical strength, endurance, agility, and coordination through conditioning exercises, running the obstacle course, and participating in competitive athletics. A physical fitness examination and a swimming test are given to each basic cadet. Special instruction in swimming and conditioning are given to those cadets who show need for improvement. Semester Hours: 2, summer.

PE 101. Gymnastics, Wrestling, Boxing, Swimming: Instruction in gymnastics, wrestling, boxing, and swimming. Semester Hour: 1, fall or spring.

PE 103. May-Period: Cadets will be assigned one of the following for instruction: tennis, golf, squash or handball. Semester Hour: 1/4.

PE 105-106. Competitive Athletics and Physical Fitness Testing: Participation in intramural and/or intercollegiate athletics. Physical fitness test. Semester Hours: 1, fall and 1, spring.

PE 201. Swimming, Judo, and Two Carry-over Skills: Instruction in swimming, judo, and two carry-over skills (tennis, golf, squash, or handball). Cadet will not repeat carry-over skill received in fourth class May period. Semester Hour: 1, fall or spring.

PE 205-206. Competitive Athletics and Physical Fitness Testing: Participation in intramural and/or intercollegiate athletics. Physical fitness test. Semester Hours: 1, fall and 1, spring.

PE 301. Unarmed Combat, Instructor Training, Elective, and One Carry-over Skill: Instruction in unarmed combat, instructor training, an elective, and one carry-over skill (tennis, golf, squash, or handball). Cadet will receive instruction in the one remaining carry-over skill. Semester Hour: 1, fall or spring.

PE 305-306. Competitive Athletics and Physical Fitness Testing: Participation in intramural and/or intercollegiate athletics. Physical fitness test. Semester Hours: 1, fall and 1, spring.

PE 401. Physiology of Exercise, Volleyball, Badminton, Applied Instruction, and Elective: Instruction in physiology of exercise, volleyball, badminton, applied instruction, and one of four electives. Semester Hour: 1, fall or spring.

PE 403. May Period. Cadets will be assigned or elect to receive instruction in physical conditioning or choice of four electives. Semester Hour: $\frac{1}{4}$.

PE 405-406. Competitive Athletics and Physical Fitness Testing: Participation in intramural and/or intercollegiate athletics. Physical fitness test. Semester Hours: 1, fall and 1, spring.

Intramural Athletics

Intramural participation provides the cadet with broad experience in sports competition. First and Second Classmen gain experience in organizing, coaching, and officiating through serving on intramural teams. Each cadet squadron provides a team in every sport.

The annual schedule of intramural athletics is as follows:

Fall — football, soccer, field hockey

Winter — boxing, wrestling, water polo, handball, squash

Spring — rugby, basketball, swimming, lacrosse, judo

Intercollegiate Athletics

Intercollegiate athletics provide a source of competition for a large number of cadets to compete in individual or team sports against colleges and universities.

A total of 16 intercollegiate sports are available to the cadets:

Fall — football, cross-country, soccer

Winter — basketball, fencing, gymnastics, indoor track, pistol, rifle, swimming, skiing, wrestling

Spring — baseball, golf, tennis, track

The Academy's varsity teams are known as the Falcons. The teams compete with leading colleges and universities from all parts of the nation. The following 1964 football schedule is an example of the strong intersectional competition scheduled in all sports:

Home Games

- 3 October — Colorado State U.
- 10 October — Notre Dame
- 17 October — Missouri
- 31 October — Arizona
- 14 November — Wyoming

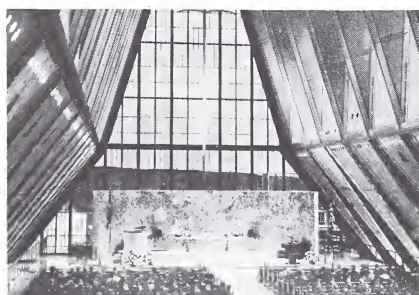
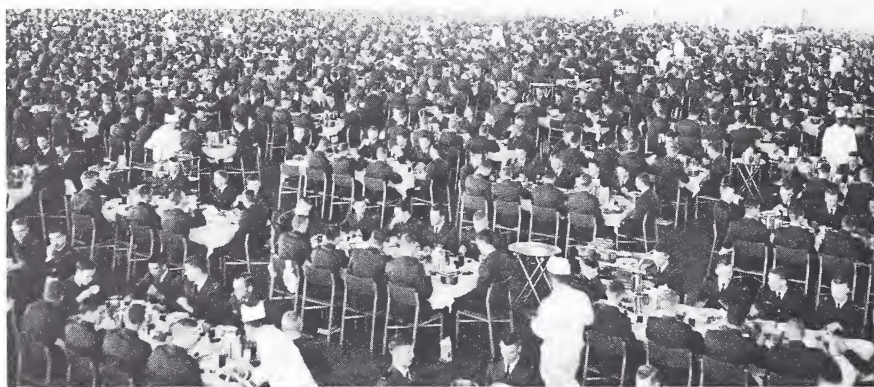
Away Games

- 19 September — Washington at Seattle
- 26 September — Michigan at Ann Arbor
- 24 October — Boston College at Chestnut Hill
- 7 November — UCLA at Los Angeles
- 21 November — Colorado at Boulder

All home games are played in the 40,000 seat stadium located on the site of the Air Force Academy. The Air Force Academy Foundation, an organization of national civic leaders, raised funds to construct the stadium. Generous donations were given by personnel throughout the Air Force. Many people from all over the country who are interested in the Academy and its athletic program also donated. The Foundation also raised money to construct the 18-hole Eisenhower Golf Course located on the Academy site.

Other competitive sports are conducted in the Cadet Gymnasium and on surrounding athletic courts and fields. It is contemplated that a Field House will be constructed as part of the expansion program to accommodate a larger Cadet Wing.

CADET LIFE



The Cadet Way of Life

The cadet way of life differentiates the cadet from his undergraduate contemporary in a civilian college or university. This way of life includes all of the activities and influences which make up the cadet's environment. It requires a rigid daily schedule and conformity to strict discipline and rules of conduct. During his four years at the Academy, a cadet progresses from follower to leader and his privileges increase with his responsibilities. The Fourth Classman has virtually no privileges and is responsible only for himself, while the First Classman is subject to minimum supervision and has broad responsibility in managing the Cadet Wing.

Basic Cadet Training

Immediately after entering the Academy, a young man receives an indoctrination in the cadet way of life through a seven and one-half week basic cadet training program. The purpose of this program is to develop young men with varied backgrounds into thoroughly disciplined cadets. Most of the training and instruction is conducted by First Classmen and supervised by Air Officers Commanding.

Basic cadets receive instruction in basic military subjects such as drill, manual of arms, weapons, customs and courtesies. They are given indoctrination rides in jet and conventional aircraft and undergo strenuous physical conditioning. The basic cadet training program is climaxed by a realistic survival exercise in the Rocky Mountains. The cadets learn how to build their own shelters, to improvise clothing and equipment, and to supplement their meager rations by hunting and fishing.

The basic cadet training program keeps the cadets busy from reveille to taps (5:30 a.m. until 9:45 p.m.). This fast, disciplined pace is a difficult transition for many of the cadets who have been accustomed to a relaxed life. The pressures involved in the program teach the cadet discipline and self-control as well as test his ability to perform effectively under stress. The Academy wants to discover as soon as possible those cadets who are not capable of withstanding the type of pressures to which they may be subjected later as Air Force officers. Only those young men with the greatest desire and resolve can expect to successfully complete the basic cadet training program.

Upon successful completion of this training, the basic cadets are accepted into the Cadet Wing as full-fledged cadets and the term

“basic” is dropped. Although the extreme pressure of their military training is relaxed during the academic semesters, the rest of the Fourth Class year is far from being easy. Throughout this first year at the Academy, the cadets are subject to stern discipline and high standards of military bearing.

Visitor Schedule

Parents will not have an opportunity to visit their sons until the fifth weekend of basic cadet training. It is recommended that visits be delayed if possible until the completion of this seven and one-half week training. After that time, parents and friends may visit on Saturday afternoons and evening, Sunday afternoons, and evenings preceding holidays.

The Air Force Cadet Wing

Life in the Air Force Cadet Wing provides an opportunity for personal development of leadership competence and recognition of outstanding performance. The permanent organization of the Wing consists of a headquarters with a commander and his staff, 4 group staffs, and 24 squadrons, each squadron consisting of approximately 110 cadets.

The squadrons and groups are supervised by commissioned officers designated as Air Officers Commanding. They are individually selected to represent to the cadet the highest standards of professional competence, experience, integrity, leadership, and career motivation.

Upperclass cadets are appointed to positions of responsibility within the Cadet Wing to perform command and staff functions and to assist with the military training of the Fourth Class. Cadet officers are selected from the First Class and senior non-commissioned officers from the Second Class. The basis for selection is the cadet's leadership ability, determined in part by the personal appraisal reports submitted twice each year. This report system requires each cadet to rate certain other cadets in his squadron, classmates and members of classes junior to his class.

The senior cadet officer is the Wing Commander with the rank of Cadet Colonel. Other important First Class ranks are Group Commander, Cadet Lieutenant Colonel; Squadron Commander, Cadet

Lieutenant Colonel; and Flight Commander, Cadet Captain. Second Classmen may hold the grades of Master Sergeant, Technical Sergeant and Staff Sergeant. Rank is indicated on the shoulder boards of the cadet uniform.

Cadet Uniforms

Distinctive cadet uniforms are issued to cadets during the fall of their Fourth Class year. The basic uniform in the wardrobe is the blue winter dress uniform worn during the academic year. The two parade dress uniforms (blue jacket and blue trousers for winter, and blue jacket and white trousers for summer) are worn to parades and ceremonies. The mess dress uniform is worn to social functions.

Cadets of the upper three classes may wear civilian clothes when departing on leave or weekend pass, while on leave or pass, and when returning to the Academy. Cadets of the First and Second Classes may wear civilian clothes off base while off duty. Cadets do not have occasion to wear civilian clothes during their Fourth Class year except while on Christmas leave.

The Cadet's Day

During the academic year a cadet's normal weekday begins at 6:15 a.m. reveille. After reveille he prepares his half of the two-man room for morning inspection. Breakfast is from 6:50 to 7:15. He attends classes or has study periods from 7:40 to 11:20. At 11:40 he marches to the dining hall for lunch. After lunch he attends classes or has study periods from 12:35 to 3:15.

Unless he is participating in intercollegiate athletics, he practices or plays on a squadron intramural team two afternoons a week from 3:45 to 5:35. The other three afternoons during the week he participates in drill, extracurricular activities or has study periods. He may volunteer for additional academic instruction from 5:00 to 5:50 each afternoon during the week.

Dinner is from 6:35 to 7:05. At 7:15 the cadet must be in his room for study until 10:30. Visits to the library are permitted during study time. Taps is at 10:45.

First Classmen have more freedom in their evening schedule. They are not required to maintain a strict study schedule.

Cadet Wing parades are held on Saturday mornings at 11:00 on the parade ground east of the academic area during the fall and spring. Visitors are welcome to attend. A parking area and bleachers are available for visitors.

Following the noon meal on Saturday, the cadet is free from duty. On Saturday afternoons and evenings and on Sunday afternoons, he may entertain guests in Arnold Hall, the cadet social center.

Leaves and Special Privileges

Cadets of the upper three classes are granted leave during the summers, varying from two to four weeks depending upon the schedule for their class. Cadets have approximately two weeks of leave during the Christmas holidays and four days during the spring. They are free from duty on approximately seven national holidays during the year. Emergency leave may be granted to a cadet whose emergency involves a member of his immediate family. Other requests for special leave are considered on an individual basis.

Special privileges to leave the Academy on weekends are based on a gradual transition from the status of a basic cadet to a second lieutenant. Privileges are progressively increased by class in recognition of added maturity and responsibility. Cadets of the Fourth Class are very restricted in their privileges, while First Classmen are relatively free on weekends.

Cadets of the Second, Third, and Fourth Classes are not permitted to own automobiles nor to maintain them at the Academy. This privilege may be granted to cadets during their First Class year.

Pay and Allowances

An Air Force cadet receives his education at government expense. In addition to an allowance for food, he receives \$111.15 per month, which is credited to his account to pay for academic supplies, clothing, and personal expenses. Quarters and medical care are provided. A cadet's pay and allowances are considered sufficient for him to be self-supporting, provided he is economical. The pay is not sufficient for a cadet to cover any debts contracted prior to entrance, to send money home to his parents, or to spend for luxury entertainment or expensive personal items. The money is carefully allocated monthly to cover the cadet's obligations with only a minimum remaining for

personal use. With proper economy during his four years at the Academy, a cadet will save enough to purchase the uniforms he will need as an officer upon graduation.

Insurance

Government sponsored insurance is not provided for cadets. A special commercial insurance plan is available to all cadets on a voluntary basis. The plan provides \$20,000 term life insurance and is available for \$3.50 per month. This amount is set aside in the Cadet Budget from the cadet's monthly pay. The policy is free of conditions or restrictions as to occupation, residence, travel or military service. The policy is convertible to any permanent plan of insurance offered by the company at the end of the term period or upon graduation from the Academy. The plan does not prevent a cadet from purchasing insurance from any other company he may select.

The Honor Code

The Honor Code is one of the most important features of cadet life. The Code was adopted by the Class of 1959 and has since been administered through elected Honor Representatives of the Cadet Wing. The Code embodies these principles: "We will not lie, cheat or steal, nor tolerate among us those who do."

The cadets realize that the Code is a bond between themselves and the entire military heritage. An adherence to the principles of personal integrity has traditionally characterized the professional officer. Every officer must follow this concept of honor if he is to perform his duties and carry out his responsibilities properly.

It is through this sense of trust that professors leave the classrooms while tests are being administered at the Academy. Both in and out of the classroom, a cadet practices the virtues of personal integrity, mutual trust, and loyalty through allegiance to the Honor Code.

Religion

In preparing cadets for future leadership, the Air Force Academy stresses the development of religious and moral values. A military leader is responsible for upholding those values among the men within his command.

A well-balanced religious program for adherents of the three major faiths — Protestant, Catholic and Jewish — enables cadets to develop their potential for religious leadership and at the same time to worship in the faith of their choice.

Cadets must attend Sunday or Sabbath services of their faith at the Cadet Chapel. Other religious activities are available to cadets who wish to participate. These include daily worship, special denominational services, choir participation, and religious instruction classes. In addition, a number of cadets have volunteered to teach Sunday School classes for children of Academy personnel.

Religious services are conducted by the Protestant, Catholic, and Jewish Chaplains. Besides their organized religious activities, the Chaplains are available to the cadets at any time for personal conferences or counseling. Many of the cadets make personal adjustments and solve problems through private discussions with their Chaplain.

The Cadet Chapel is the center of religious activities for the Cadet Wing. The unique Chapel features 17 aluminum spires, towering 150 feet in a space-age effect. The Chapel was designed to provide a separate area for the three major faiths and to impart a distinct character symbolic of each religion. The Protestant Chapel is enclosed by the aluminum spires which are separated by multi-colored stain glass. On the terrace below are the Catholic Chapel and the Jewish Chapel. Also there is a Meeting Room provided for cadets who do not desire to worship in any of the three chapels.

Recreation

Recreational activities provide the cadets with diversion from their intensive schedule of classes and study. Arnold Hall is the cadet social center where most of the weekend activities are held. The social center is divided into three main areas: a 3,000-seat theater, the reception room and ballroom, and recreational rooms.

Movies are held in the theater on Friday and Saturday nights and Sunday afternoons for all cadets who desire to attend. The theater is also used for concerts, plays, guest appearances, and other special events.

The reception room and ballroom is one large area where the cadets entertain guests, hold formal and informal dances and other

social functions. This spacious area is enclosed with picture windows, providing a view of the northern portion of the Academy site and the landmark "Cathedral Rock." Located on the outside patio is a white marble statue of the mythological winged horse "Pegasus," given to the Air Force Academy by the Italian Government.

The recreation area has a game room, card room, television room, an eight-lane bowling alley, and snack bar which may be used by cadets and their guests.

Social functions are held in Arnold Hall on Friday and Saturday nights and evenings preceding holidays. The Cadet Wing Hostess supervises all of the social functions. On weekends cadets and guests may utilize the Academy recreation area, called Farish Memorial. Here in a mountainous setting, they enjoy fishing, horseback riding, boating, barbecues, picnics, and winter sports.

The Cadet Wing Hostess supervises the teaching of proper social customs and courtesies to Fourth Class cadets. This includes dining etiquette, social calls, introductions, grooming and conduct in public, and other social graces. Also, ten hours of professional dancing instructions are given to each Fourth Class cadet.

Cadet Activities

Extracurricular activities are available to the cadets to further their hobbies or specific interests. It has been found that participation in these activities helps to develop leadership abilities. The cadets may form their own activities, provided there is sufficient interest, and may join the organizations of their choice. Major cadet activities are as follows:

Representative Activities

Class Ring Committee — Representatives of the Second Class select the ring crest and assist the class in selection and purchase of the class ring. The ring is awarded during June Week of the Second Class year.

Wing Dance Committee — Representatives from each squadron plan dances for their class and the Cadet Wing.

Class Councils — Representatives study special problems as directed by the Commandant of Cadets or the Cadet Wing Commander and prepare supporting studies and reports.

Catholic and Protestant Religious Councils — Representatives from each class assist in planning religious activities and represent the Academy at intercollegiate religious conferences.

Rally Committee — Representatives from each squadron plan pep rallies and halftime events at football games and other competitive sports. This activity is responsible for the care and presentation of the Cadet Wing Mascot.

Academic and Professional Activities

Cadet Forensic Association — Provides cadets with an opportunity to participate in forensic activities including debating, extemporaneous speech, oratory, discussion, and interpretive reading. Members of the Association represent the Academy in intercollegiate speech competition.

Cadet Forum — Provides a forum for cadet and guest speaker discussion of public military affairs and for participation in intercollegiate student conferences.

Cadet Engineering Society — Provides the means to engage in extracurricular engineering projects, especially aeronautical science and rocket development.

Cadet Chorale — Provides for participation in group singing. The Chorale appears before the Cadet Wing and the public in approved instances.

Professional Studies Group — Provides an opportunity to learn more about airpower and airmanship subjects. The Studies Group hears lectures by military officials, conducts a books and periodicals review panel, supervises the use of squadron airpower rooms, and arranges a limited number of field trips to military installations.

Blue Bards (Dramatics Society) — Provides an opportunity for cadets to develop their talents in theatrical production. Two major dramatics productions are presented annually.

Science Research Division — Provides cadets with an opportunity to accomplish research in mathematics, physics and chemistry.

Publication Activities

Contrails Staff — Responsible for publication of the "Contrails" handbook prior to June of each year. The handbook serves as a

record for the traditions and customs of the Cadet Wing as well as an orientation guide to the military service for each new class.

Polaris Staff — Responsible for publication of the annual yearbook "Polaris." The yearbook presents a pictorial history of the activities of the Cadet Wing and the Air Force Academy during the year.

Talon Staff — Responsible for publication of the monthly cadet magazine "The Talon."

Dodo Staff — Responsible for writing an informal cadet paper called "The Dodo."

Recreational Activities

The following divisions of Cadet Activities provide facilities and activities for the cadets in various hobbies:

Aquatic — Cadets participate in such water activities as sailing, scuba, and water skiing.

Audio — Cadets further their education in electronics and construct high fidelity and stereo sound systems. This activity provides for the Cadet Broadcasting Station.

Aviation — This activity provides interested cadets with an opportunity to obtain FAA ratings. Members accomplish their own maintenance and rebuilding of aircraft.

Bowling — Cadets bowl for their own enjoyment and also provide a team for local bowling competition.

Bowman — Cadets engage in the sport of archery and furnish a team for competition.

Bridge — Cadets receive instruction and practice in bridge and participate in tournaments.

Chess — Instruction and practice is provided in chess and matches are arranged with outside teams.

Fishing — Cadets go on fishing trips in the local area.

Foreign Language — Provides an opportunity for cadets to develop their ability to speak foreign languages and enhance their education in foreign customs.

Lacrosse — Cadets play and receive instruction in the sport of lacrosse.

Model Engineering — Provides facilities and opportunities for the design, construction, and operation of model railroads, aircraft, and ships.

Mountaineering — Cadets participate in mountaineering activities.

Musical — Cadets further their musical talents and provide music for certain cadet functions.

Photography — Cadets receive instruction in photography, have opportunities to take photos, and render photographic assistance to other activities of the Cadet Wing.

Radio — Furthers amateur radio interest and provides an understanding of military communications.

Saddle — Provides facilities and opportunities for horseback riding. A team of cadets represents the Academy in the National Intercollegiate Rodeo Association.

Ice Skating — Provides for recreation in figure skating and hockey.

Gun — Cadets engage in the sports of hunting and skeet shooting. This activity sponsors a skeet team and a hi-powered rifle team.

Handball — Provides for practice in handball and participation in competitive games.

Judo — Instruction in the art of self defense is provided and a team is trained for competition.

Skiing — Provides for instruction and practice in skiing and trips to ski areas in the Rocky Mountain region.

Squash — Instruction in squash and participation in competitive games.

Stamp — Cadets engage in philatelic activities.

Volleyball — Cadets receive instruction in volleyball and participate in college-level competition.

Water Polo — Cadets play water polo and represent the Academy in competition with other teams.

Weight Lifting — Cadets participate in the sport of weight lifting and compete with similar teams.

The Cadet Wing Mascot

In the fall of 1955, members of the Class of 1959 selected the falcon as the mascot of the Cadet Wing. The falcon was chosen because its strength, alertness, aggressiveness, and poise in flight are

symbolic of the mission of the United States Air Force. The falcon was named "Mach I," the term indicating the speed of sound.

There are several falcons at the Academy housed in the mews north of the academic area. The falcons are trained and cared for by the Cadet Wing Falconers. These cadets volunteer their free time to practice the ancient sport of falconry, which involves training the falcons to fly in pursuit of a lure. The Cadet Falconers conduct demonstrations of the falcons' flying ability at halftime activities at football games and other sports events.

Academic Activities

The Academy sponsors several important educational meetings annually. Each spring an Air Force Academy assembly is held with delegates from colleges and universities all over the country gathering to hear distinguished speakers and to discuss vital international issues. In December the Academy hosts a debate tournament which provides an opportunity for top collegiate debaters to compete for honors and trophies. Meetings are often held at the Academy by various scientific and scholarly organizations. During each academic year, senior military officers, professional authorities, and academic scholars appear as special guest lecturers at the request of various cadet activities and faculty groups.

June Week Activities

During the week prior to graduation of a cadet class, the Academy holds June Week activities honoring the graduates with parades, awards, and social events. June Week is climaxed by graduation ceremonies featuring a distinguished guest speaker, followed by the presentations of diplomas and commissions to the graduates. Parents and friends of the graduating cadets are encouraged to visit during June Week and to take part in the many activities.

A program of cadet awards provides recognition to individual graduates who have attained outstanding achievement in academics, leadership, and athletics. Some 40 individual awards are presented to cadets during each June Week. Private individuals and organizations provide gifts for the outstanding cadets not to exceed a monetary value of \$200. Organizational trophies are presented to the outstanding cadet squadron in drill, to the outstanding cadet squadron in intramural athletics, to the outstanding cadet squadron in overall military performance, and to the cadet honor squadron.

CAREER INFORMATION



Officer Rank

A cadet who has maintained the required grades will be graduated from the Academy with a commission as a second lieutenant in the Regular component of the United States Air Force.

Flying Training

An Academy graduate who is physically qualified may volunteer for pilot or navigator training. After graduation leave he will be sent to an Air Training Command base and will spend about a year earning the rating of pilot or navigator.

Career Assignments

An Academy graduate who completes pilot training will likely receive his first assignment in an operational unit as an air crew member in fighter, bomber or troop carrier aircraft. A graduate who does not qualify for any type of flying duty may be sent to a professional technical school. For example, he may specialize in guided

missiles and receive an assignment in missile operation or research and development.

Further education at an armed forces graduate school or at a civilian college or university may be one of the early assignments of an Academy graduate. He may concentrate his graduate work in the sciences, social sciences or humanities and later receive an assignment based on his specialty.

As the Academy graduate progresses in his career, he will rotate between educational assignments, operational duties, and staff positions — both in the United States and overseas. With advances in rank his responsibilities will increase proportionately, and opportunities will be ever-present for him to evolve to greater command responsibility.

Career Benefits

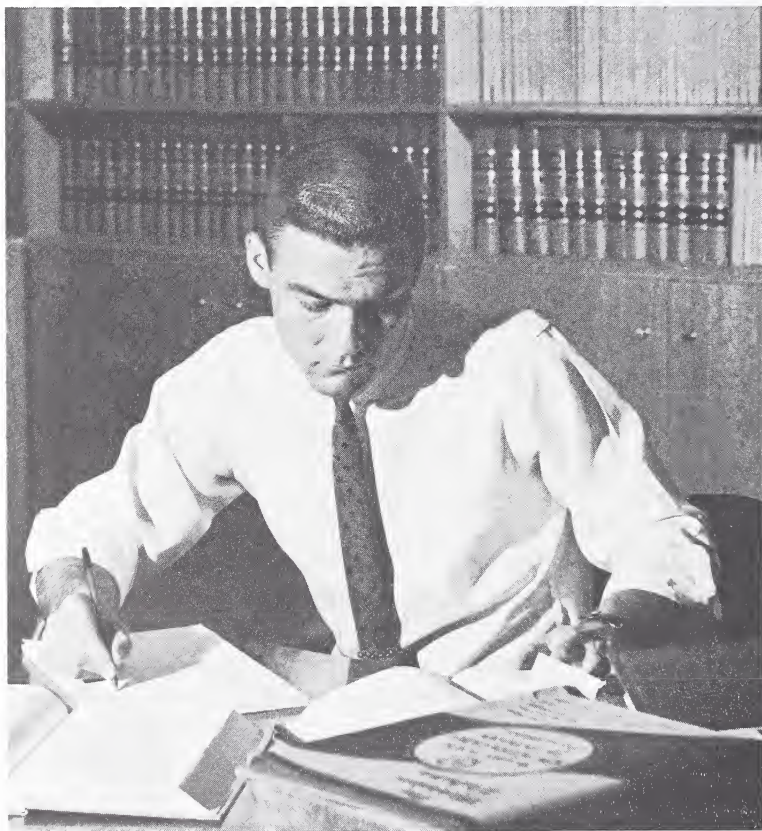
The Academy graduate will obtain substantial periodic pay increases and accrue promotions on the basis of efficiency and seniority through successive ranks. Besides his base pay he will receive flight pay (if on flying duty), tax free subsistence and quarters allowances, medical care for himself and dependents, payment of transportation costs, dislocation adjustments, and retirement pay. Some of the additional benefits which will be available to him are base exchange and commissary privileges, in-service housing loans, and educational opportunities. Monthly compensation is granted to dependents of deceased Air Force personnel who die in the line of duty while in the service.

Advanced Education

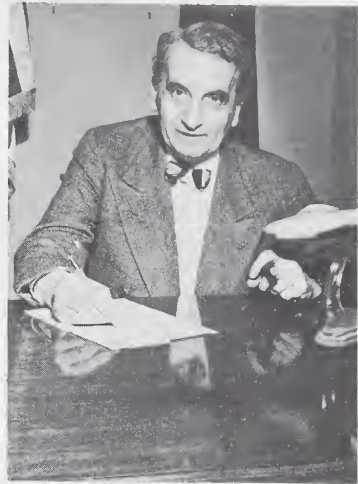
The Air Force encourages its officers to apply for study in civilian colleges or universities. An officer is accepted for an educational assignment, based on his qualifications and the needs of the Air Force in his chosen field of study. It is anticipated that a substantial number of Academy graduates will have the opportunity to obtain advanced degrees. The Academy's four-year curriculum will qualify a graduate to study for a master's degree either in physical sciences, social sciences or humanities. All Academy graduates may expect to be assigned during their careers to one or more of the armed forces schools for advanced professional studies.

Scholarships and Fellowships

Cadets of the Air Force Academy may enter the Rhodes scholarship competition each year. Those desiring to compete for a scholarship are carefully screened by the Academy on the basis of scholastic ability, character, and extracurricular activities. Since the Academy graduated its first class in 1959, seven graduates have won Rhodes scholarships to obtain master's degrees at Oxford University, England. Cadets have recently been invited to compete for other scholarships and fellowships providing advanced education in the United States and abroad. These include the National Science Foundation Fellowships, Fulbright and Olmstead Scholarships, and Daniel and Florence Guggenheim Fellowships.



Lt. David Roe, Rhodes Scholar

THOMAS D. WHITE AWARD**Edward Teller, 1962****Theodore von Karman, 1963**

The Thomas D. White National Defense Award was established by the Academy in 1962. It is awarded annually to the United States citizen adjudged to have contributed most significantly to the national defense and security of the United States. Such contributions may be in any specific field of endeavor; such as science, technology, leadership, management, national affairs, international affairs, or a combination thereof.

Famed Nuclear Physicist, Dr. Edward Teller, principal architect of the H-bomb, was the first recipient in 1962. World-renowned Aerodynamicist, Dr. Theodore von Karman, pioneer in the development of jet propulsion and rocket engines, was the 1963 winner.

The award honors General Thomas Dresser White, who served as Air Force Chief of Staff from 1957 until his retirement in 1961, climaxing 41 years of active service. His great energy, wisdom, vision, and leadership contributed immeasurably to the Academy's beginning as well as to the progress achieved by the Air Force during a period of revolutionary change. General White played a dominant role in stocking the Air Force with supersonic fighters, spearheading the "mixed force" concept of strategic bombers and ballistic missiles, and leading the Air Force into the aerospace age.

PERSONNEL DIRECTORY

SUPERINTENDENT AND STAFF

Maj. Gen. Robert H. Warren
Superintendent
 B.S., United States Military Academy

Brig. Gen. Robert F. McDermott
Dean of the Faculty
 B.S., United States Military Academy
 M.B.A., Harvard University
 LL.D., St. Louis University

Brig. Gen. Robert W. Strong, Jr.
Commandant of Cadets
 B.S., United States Military Academy

Col. Edmund A. Rafalko
Director of Athletics
 B.S., United States Military Academy
 M.A., George Washington University

Col. Virgil J. O'Connor
Cadet Registrar
 B.A., State College of Iowa
 M.A., University of Michigan
 Ed.D., Harvard University

Col. Ralph J. Hallenbeck
Chief of Staff
 B.S., United States Military Academy

Col. Harry C. Green, Jr.
Command Surgeon
 M.D., University of Louisville

Col. George J. Cameron
Command Chaplain
 B.A., Albion College
 B.D., Northwestern University

Col. Christopher H. Munch
Staff Judge Advocate
 B.S., United States Military Academy
 J.D., University of Illinois

Col. Richard P. Haney
Director of Information
 University of Texas

Col. James M. Whitmire, Jr.
Deputy Chief of Staff/Personnel
 B.S., The Citadel

Col. Hugo Zimmerman
Deputy Chief of Staff/Comptroller
 University of Maryland

Col. Edward J. Stealy
Deputy Chief of Staff/Operations and Plans
 B.S., University of Maryland

Lt. Col. Jerome C. Eichholz
Deputy Chief of Staff/Materiel
 The Citadel

Lt. Col. Ray S. Warden
Deputy Chief of Staff/Civil Engineering
 A.B., Syracuse University

Lt. Col. James T. Hargrove
Director of Administrative Services
 University of Maryland

Lt. Col. John E. Gannon
Director of Inspection
 B.B.A., Jackson College

FACULTY

The Academic Program

Maj. Robert L. Able
Associate Professor of Economics
 B.S., University of Louisville
 M.B.A., Ph.D., University of Kentucky

Capt. Don E. Ackerman
Instructor in Economics
 B.S., United States Military Academy
 M.B.A., Harvard Business School

Capt. William E. Albright, Jr.
Instructor in Political Science
 B.S., United States Military Academy
 Licence (M.A.) Doctoral Studies
 Graduate Institute of International
 Studies, Geneva, Switzerland

Maj. Ross C. Alm
Associate Professor of English and Speech
 B.A., University of North Dakota
 M.A., Michigan State University
 Ph.D., University of Denver

Capt. Arnold A. Anderson
Assistant Professor of German
 B.A., St. John's University, New York
 M.A., Colorado College

Capt. B. Conn Anderson, Jr.
Instructor in Political Science
 B.S., United States Military Academy
 M.A., Oxford University

Capt. William L. Anderson
Assistant Professor of English
 B.S., United States Military Academy
 M.A., University of Oklahoma

Maj. Richard T. Andrews
Assistant Professor of Behavioral Sciences
 B.A., Willamette University
 M.S., Trinity University

Maj. Edward Anlian
Assistant Professor of Mathematics
 B.S., Albright College
 M.S., University of Iowa

Capt. John E. Arnet
Assistant Professor of Chemistry and Physiology
 B.S., United States Military Academy
 M.A., University of Texas

Maj. Hendrick J. Arnold
Associate Professor of Mathematics
 B.S.E.E., M.A., University of Arkansas
 M.S.E.E., Louisiana State University

Col. John W. Ault
Professor and Head of Department of Mathematics
 B.S., Bowling Green State University
 M.A., The Ohio State University

Lt. Col. Cortland P. Auser
Professor of English
 B.A., Brooklyn College
 M.A., Columbia University
 Ph.D., New York University

Capt. William K. Ayers
Instructor in English
 B.A., State University of Iowa
 M.A., Indiana University

Maj. Theodore Bacha
Instructor in Mechanics
 B.S., Pennsylvania State University
 M.S., Purdue University

Maj. Jacob C. Baird
Instructor in Mathematics
 B.S., Southern Illinois University
 M.S., Stanford University

Lt. Col. Paul Baker, Jr.
Professor and Head of Department of Physics
 B.A., Washington and Lee University
 B.S., United States Military Academy
 M.S., North Carolina State College

Capt. Arnold P. Ballantyne
Assistant Professor of Economics
 B.A., University of Southern California
 M.A., State University of Iowa

Capt. John C. Balogh
Instructor in Physics
 B.S., United States Naval Academy
 M.S., Air Force Institute of Technology

Capt. James E. Banks
Assistant Faculty Executive; Basic Sciences Division Executive; Associate Professor of Chemistry and Physiology
 B.S., M.S., Ph.D., Stanford University
 Advanced Study, Technische Hogeschool, Delft, Netherlands

Capt. Charles Barnett
Associate Professor of French
 B.A., University of Florida
 M.A., Louisiana State University

Maj. James W. Barnhill
Assistant Professor of History
 B.A., Presbyterian College
 M.A., Northwestern University

Capt. Fred D. Bartleson, Jr.
Assistant Professor of Physiology
 B.S., M.S., University of Florida

Lt. Col. Ray S. Basham
Associate Professor of Electrical Engineering
 B.S., United States Military Academy
 M.S., Ph.D., University of Illinois

Col. Roger R. Bate
Permanent Professor and Head of Department of Astronautics
 B.S., United States Military Academy
 B.A., B.Sc., M.A., Oxford University

Capt. Wendall C. Bauman
Instructor in Mathematics
 B.S.M.E., University of Nebraska
 M.M.E., University of Oklahoma

Maj. Jaime Berdecio (Bolivian Air Force)
Instructor in Spanish
 Diplomat, Bolivian Armed Forces War College and Argentine Armed Forces Staff College

Capt. Theodore F. Beresford, Jr.
Assistant Professor of Electrical Engineering
 B.S., M.S., University of Colorado

Capt. George B. Berke
Instructor in English
 B.A., Rutgers University
 M.A., University of Wisconsin

Capt. Joseph A. Berthelot
Assistant Professor of English
 B.A., Assumption College of University
 of Western Ontario, Canada
 M.A., Texas Western College
 Ph.D., University of Denver

Maj. Joseph W. Best
*Research Associate; Assistant Professor
 of Mathematics*
 B.S., Youngstown College
 M.S., Oklahoma State University

Col. Harold J. Bestervelt
*Professor and Head of Department of
 Electrical Engineering*
 B.S., United States Military Academy
 M.S., University of Illinois

Capt. Charles E. Bishop
Instructor in Aeronautics
 B.S., United States Military Academy
 M.S.M.E., University of Colorado

Capt. Charles A. Bodeen
Assistant Professor of Astronautics
 B.S., M.S., M.E., California Institute of
 Technology

FSO C. Arthur Borg
Visiting Lecturer in Political Science
 B.S., United States Military Academy
 B.S.F.S., Georgetown University

Maj. Ray L. Bowers
Associate Professor of History
 B.S., United States Naval Academy
 M.A., University of Wisconsin

Capt. James M. Boyle
Instructor in History
 B.S., University of Santa Clara
 M.A., Stanford University
 Ph.D., St. Louis University

Capt. Kenneth E. Brant
Instructor in Mathematics
 B.S., United States Military Academy
 M.S.E., Purdue University

1st Lt. John M. Brazzel
Instructor in Economics
 B.A., B.B.A., Texas A&M University

Maj. Paul L. Briand, Jr.
Associate Professor of English
 B.A., University of New Hampshire
 M.A., Columbia University
 Ph.D., University of Denver

Maj. Fred A. Brockway
Associate Professor of English and Philosophy
 B.A., M.A., University of Texas

Col. Robert H. Brundin
Associate Professor of Chemistry
 B.S., United States Military Academy
 M.S., The Ohio State University

Maj. Carl L. Brunson
Assistant Professor of Mechanics
 B.S., United States Military Academy
 M.S.A.E., University of Michigan

Maj. Thomas B. Bruton
Assistant Professor of Law
 B.S., LL.B., University of Colorado

Maj. James E. Bubb
*Assistant Professor of Aeronautics
 Research Associate*
 B.S., Bucknell University
 M.S.M.E., Purdue University

Capt. Robert M. Burch
Assistant Professor of History
 B.S., United States Naval Academy
 M.A., Columbia University

Capt. William D. Burroughs
Assistant Professor of English
 B.S., United States Military Academy
 M.A., University of North Carolina

Maj. Blaine R. Butler, Jr.
Instructor in Aeronautics
 B.S., United States Military Academy
 M.S., Purdue University

Maj. Franklin C. Butler, Jr.
*Assistant Professor of Behavioral Science;
 Programmed Instruction Specialist*
 B.A., Bowdoin College
 M.A., Clark University

Capt. James D. Butt
Assistant Professor of Mechanics and Physics
 B.S.E., University of Michigan
 M.S.N.E., Air Force Institute of
 Technology

Capt. Philip D. Caine
Instructor in History
 B.A., University of Denver
 M.A., Stanford University

Lt. Col. John D. Calhoun
*Research Associate; Associate Professor
 of Aeronautics*
 B.S., United States Military Academy
 M.S.E., Princeton University

Capt. Jack W. Carlson
Assistant Professor of Economics
 B.S., M.B.A., University of Utah
 M.P.A., Ph.D., Harvard University

Capt. Charles R. Carney

Assistant Professor of German
B.A., M.A., Vanderbilt University

Maj. Hiram C. Caroom

Faculty Executive; Associate Professor of Economics
B.A., University of Redlands
M.B.A., University of Southern California
D.B.A., Harvard University

Capt. Donald G. Carpenter

Assistant Professor of Physics
B.S., University of Maryland
M.S., Air Force Institute of Technology
Ph.D., Iowa State University

Maj. John C. Casey

Assistant Professor of Astronautics
B.S., Purdue University
M.S.A.E., A.E., California Institute of Technology

Lt. Col. Joseph R. Castelli (U.S. Army)

Assistant Professor of Geography
B.S., United States Military Academy
M.A., University of Oklahoma

Capt. Chester F. Caton

Associate Professor of English
B.A., Wayne University
M.A., Ph.D., Northwestern University

Capt. Pat Charles

Instructor in Law
B.S., LL.B., University of Virginia

Capt. Stanley F. Choate

Instructor in Mechanics
B.A., Colby College
B.S., United States Military Academy
M.E.E., University of Oklahoma

Maj. John E. Chrisinger

Associate Professor of Aeronautics
B.A., Iowa State University
M.S.A.E., A.E., Massachusetts Institute of Technology

Maj. Roy T. Clark, Jr.

Associate Professor of Chemistry
B.S., M.A., Southwest Texas State College

Maj. William G. Clark

Associate Professor of English
B.A., M.A., State University of Iowa
Ph.D., University of Denver

Capt. Maurice V. Clegg

Instructor in Mathematics
B.S., University of Idaho
M.S., University of Utah

Capt. Charles R. Coble, Jr.

Research Associate; Instructor in Political Science
B.S., United States Naval Academy
M.A., University of North Carolina

Capt. Samuel W. Cochran

Associate Professor of Behavioral Sciences
B.A., Mississippi College
A.M., Peabody College
Ph.D., The Ohio State University

Capt. John D. Colbrunn

Assistant Professor of Economics
B.A., DePauw University
M.A., University of Oklahoma

Capt. Donald K. Cole

Assistant Professor of Aeronautics
B.S., United States Naval Academy
M.S.M.E., Southern Methodist University

Maj. George W. Collins

Instructor in History
B.S., M.A., Northwestern University

1st Lt. James H. Conely, Jr.

Instructor in English
B.A.E., M.Ed., University of Florida

Capt. Bryan R. Conn

Instructor in English
B.A., Baylor University
LL.B., University of Texas
M.A., University of Colorado

Capt. Peyton E. Cook

Instructor in History
B.S., United States Military Academy
M.A., University of Texas

Capt. Charles M. Cooke, Jr.

Assistant Professor of History; Instructor in Chinese
B.S., United States Naval Academy
M.A., University of Washington

1st Lt. Frank B. Cooper

Instructor in English
B.A., University of North Dakota
B.Litt., University of Glasgow, Scotland

Maj. Philip L. Cooper

Instructor in Physiology
B.S., Long Island University
M.S., New York University

Lt. Col. Joseph D. Cortez

Associate Professor of Spanish
B.S., University of Arizona
M.A., University of Denver
Studies, Universidad Nacional de Mexico

- Capt. James A. Crim**
Assistant Professor of Aeronautics
 B.S.M.E., University of Washington
 M.S.M.E., University of Colorado
- Col. Gage H. Crocker**
Professor and Head of Department of Aeronautics
 S.B., Massachusetts Institute of Technology
 M.S., California Institute of Technology
 M.S., Ph.D., University of Michigan
- Capt. Ernest D. Cunningham**
Instructor in Law
 B.A., LL.B., Columbia University
- Capt. Charles G. Curtis**
Instructor in Mechanics
 B.S., United States Naval Academy
 M.S.A.E., University of Southern California
- Capt. Richard J. Daleski**
Instructor in Political Science
 B.S., United States Military Academy
 M.P.A., Princeton University
- Lt. Col. Daniel H. Daley**
Associate Professor of Aeronautics
 B.S.M.E., Purdue University
 S.M.A.E., Massachusetts Institute of Technology
- Capt. Walton F. Dater, Jr.**
Instructor in English
 B.A., Yale University
 M.A., Syracuse University
- Maj. Carl F. Davis**
Associate Professor of Electrical Engineering
 B.A., University of Maine
 M.S., Ph.D., University of Illinois
- Maj. Peter H. Davison**
Instructor in Russian
 B.S., Georgetown University
 M.A., Columbia University
- Capt. Richard E. Denfeld**
Assistant Professor of Physics
 B.S., United States Naval Academy
 M.S., University of Utah
- Capt. John C. M. des Isles**
Assistant Professor of Behavioral Sciences; Programmed Instruction Specialist
 B.S., United States Military Academy
 M.S., Purdue University
- Capt. Earl S. Doderer**
Instructor in Mechanics
 B.S.C.E., Union College
 M.S.E., Princeton University
- Capt. John A. Donoho**
Assistant Professor of Russian
 B.S., Memphis State University
 M.A., Syracuse University
- Capt. Thornton T. Doss**
Assistant Professor of Physics
 B.A., Austin College
 M.A., University of Texas
- Capt. Joseph M. Dougherty**
Instructor in English
 B.S., United States Military Academy
 M.A., Vanderbilt University
- Capt. Richard P. Dowell**
Instructor in Political Science
 B.S., United States Military Academy
 M.A., Stanford University
- Lt. Col. Eldon W. Downs**
Associate Professor of History
 B.A., M.A., Oklahoma State University
 Ph.D., University of Wisconsin
- Capt. Richard D. Duckworth**
Instructor in Economics
 B.S.C., Texas Christian University
 M.S.E., Baylor University
- Capt. Walter N. Duffett**
Instructor in Geography
 A.B., San Diego State College
 M.A., The Ohio State University
- Capt. Richard L. Eisenman**
Associate Professor of Mathematics
 A.B., College of the Holy Cross
 M.A., University of Connecticut
- Capt. William P. Emley, Jr.**
Instructor in Mathematics
 B.S., United States Military Academy
 M.S., Oklahoma State University
- Capt. Harry W. Emrick**
Instructor in Geography
 B.S., United States Military Academy
 M.S., The Ohio State University
- Maj. Richard R. Erbschloe**
Assistant Professor of Mathematics
 A.B., M.A., University of Missouri
- Maj. Philip J. Erdle**
Assistant Dean for Research; Associate Professor of Mechanics
 B.S., United States Military Academy
 M.S., University of Michigan
 Ph.D., University of Colorado
- Maj. Howard M. Estes, Jr.**
Associate Professor of Mechanics
 B.S., United States Naval Academy
 M.S., Ph.D., University of Michigan

Col. George V. Fagan

Director of the Library; Permanent Professor of History
 B.S., M.A., Temple University
 M.A.L.S., University of Denver
 Ph.D., University of Pennsylvania

Maj. John W. Fahrney

Associate Professor of Law
 B.A., LL.B., LL.M., George Washington University

Capt. Michael Fatiuk, Jr.

Assistant Professor of Russian
 B.S., Roanoke College
 M.A., Indiana University

Capt. Michel Fauret (French Air Force)

Instructor in French
 Ecole de l'Air Graduate

Capt. George K. Feather

Instructor in English
 B.A., M.A., Baylor University

Capt. Albert A. Fitzpatrick

Assistant Professor of Economics
 B.S., M.B.A., Ph.D., University of Southern California
 M.S., Baylor University

Capt. Philip M. Flammer

Instructor in History
 B.S., Utah State University
 M.A., George Washington University
 Ph.D., Yale University

Capt. Wallace E. Fluhr

Instructor in Mechanics
 B.S.C.E., University of Kentucky
 M.S., Ph.D., University of Illinois

Capt. David I. Folkman, Jr.

Assistant Professor of History
 B.S., Brigham Young University
 M.A., University of Utah

Capt. Angelo L. Fortuna

Instructor in Behavioral Sciences
 B.S., Rutgers University
 M.A., Temple University

Col. Winston C. Fowler

Associate Dean for Educational Services
 B.S., University of Florida
 B.S., United States Military Academy
 M.S., Texas A&M University

Capt. Roger P. Fox

Assistant Professor of History
 B.A., Western Reserve University
 M.A., Syracuse University

Capt. Jack E. Freeman

Assistant Professor of Political Science
 B.A., M.A., Baylor University

Capt. Gustav J. Freyer

Assistant Professor of Physics
 B.A., United States Military Academy
 M.S., Air Force Institute of Technology

Capt. Wayne T. Frye

Instructor in Astronautics
 B.S., United States Naval Academy
 M.S., Massachusetts Institute of Technology

Maj. John R. Galt

Associate Professor of English
 B.A., M.A., Boston University
 Ph.D., University of Denver

Maj. Everette T. Garrett

Assistant Professor of Electrical Engineering
 B.A., Cornell College
 M.A., State University of Iowa

Capt. Gerald Garvey

Instructor in Political Science
 B.S., United States Air Force Academy
 M.A., Ph.D., Princeton University

Lt. Col. Jesse C. Gatlin, Jr.

Associate Professor of English
 B.S., United States Military Academy
 M.A., University of North Carolina
 Ph.D., University of Denver

Capt. Richard F. Gebhardt

Instructor in Mechanics
 B.S.E.E., Union College
 M.S.A.&A.E., M.S.I.E., University of Michigan

Capt. William Geffen

Associate Professor of German
 B.A., University of California
 M.A., Stanford University

Capt. Yves R. Geneste

Instructor in French
 B.A., M.A., Colorado College

Capt. Herman L. Gilster

Instructor in Economics
 B.S., United States Military Academy
 M.B.A., University of Denver

Capt. William C. Giltner

Associate Professor of Mechanics
 B.S., University of New Mexico
 M.S., University of Illinois

Capt. John G. Girod

Instructor in English
 B.A., University of Southwestern Louisiana
 M.A., Louisiana State University

Capt. Carter M. Glass
Instructor in Mathematics
 B.S., United States Naval Academy
 M.S., Air Force Institute of Technology

Maj. William F. Goodner
Associate Professor of Chemistry and Physiology
 B.A., Colorado College
 M.A., Stanford University

Capt. William J. Goodwin, Jr.
Instructor in Physics
 B.S., United States Military Academy
 M.S., University of Wisconsin

Capt. Richard J. Gowen
Research Associate; Instructor in Electrical Engineering
 B.S., Rutgers University
 M.S., Ph.D., Iowa State University

Capt. Theodore K. Graves
Instructor in Behavioral Sciences
 B.S., United States Naval Academy
 M.S.I.E., University of Southern California

Capt. Harold D. Gray
Assistant Professor of English
 B.A., University of South Dakota
 M.A., Stanford University

Maj. Lawrence E. Green
Assistant Professor of Political Science
 B.S., Southern Illinois University
 M.S., University of Illinois
 M.A., Baylor University

Capt. Santiago Guzman, Jr.
Instructor in Spanish
 B.S., United States Naval Academy
 M.A., University of North Carolina

Capt. Alfred J. Hallisey
Instructor in Physics
 B.S., United States Military Academy
 S.M., Massachusetts Institute of Technology

Lt. Col. J. Fred Hamblen
Assistant Professor of Law
 B.S., LL.B., University of Tennessee
 LL.M., George Washington University

Lt. Col. William C. Hamilton, Jr.
Instructor in Law
 B.A., University of Kentucky

Maj. Frank M. Hammock
Assistant Professor of Chemistry
 B.S., Florida State University
 M.S., University of Colorado

Capt. John B. Haney
Assistant Professor of English; Associate Director of Audio-Visual Services for Instructional Systems
 B.S., Miami University, Ohio
 M.A., Ph.D., University of Michigan

Maj. John Hansel, Jr.
Associate Professor of Economics
 B.S.B.A., University of Florida
 M.B.A., North Texas State University

Capt. Jerry L. Hanson
Instructor in Electrical Engineering
 B.A., St. Olaf College
 B.S., Air Force Institute of Technology
 M.S., University of Illinois

Capt. Billy D. Harrison
Assistant Professor of Mathematics
 B.A., Oklahoma State University
 M.S., North Carolina State College

Capt. Preston S. Harvill, Jr.
Assistant Professor of Mechanics
 B.S., United States Military Academy
 M.S., Stanford University

Capt. Jerome D. Hawkins
Instructor in Mathematics
 B.S., United States Military Academy
 M.A., Washington State University

Maj. Robert E. Hays, Jr.
Instructor in History
 B.A., Southern Methodist University
 M.A., University of Texas

Capt. Theodore C. Heine, Jr.
Assistant Professor of German
 B.A., Cornell University
 M.A., Middlebury College

2nd Lt. Juergen R. Heise
Executive Officer of the Library
 B.A., M.A., Syracuse University

Capt. Daymond E. Helton
Instructor in Mathematics
 B.A., M.A., University of Kentucky

Lt. Col. Jean C. Hempstead
Associate Professor of Mathematics
 B.S., Iowa State University
 M.A., University of Pennsylvania
 C.E., Iowa State University

1st Lt. Carl W. Hennrich
Assistant Professor of Aeronautics
 B.A.E., B.E.E., M.A.E., University of Virginia

Capt. Eugene M. Henry
Instructor in Physics
 B.S., University of Illinois
 M.S., University of Chicago

Col. Archie Higdon

Permanent Professor and Head of Department of Mechanics (on sabbatical leave with The American Society for Engineering Education)

B.S., South Dakota State College
M.S., Ph.D., Iowa State University

Maj. Howard B. Hitchens, Jr.

Director of Audio-Visual Services

B.A., University of Delaware
M.A., Teachers College, Columbia University
Ph.D., Syracuse University

Maj. Alvin P. Hjorten

Instructor in Astronautics

B.S.E.E., University of Washington
M.S.E.E., M.S., Instr. E., University of Michigan

Capt. Harold W. Holtzclaw

Assistant Professor of Political Science

A.B., M.A., University of Kentucky

Lt. Col. Raymond E. Horne, Jr.

Instructor in Chemistry

B.A., M.S., University of Tennessee

Capt. Donald B. Hooper

Instructor in Behavioral Sciences

B.S., M.B.A., The Ohio State University

Capt. Henry G. Hostetter

Assistant Professor of History

B.A., Lebanon Valley College
M.A., Pennsylvania State University
Ph.D., University of Colorado

Capt. Crosby A. Houston

Instructor in Geography

B.S., M.Ed., Rutgers University
M.S., Trinity University

Capt. Evan E. Huston

Assistant Professor of Electrical Engineering

B.S., Colorado State University
M.S., University of Illinois

1st Lt. Wilfred D. Iwan

Assistant Professor of Mechanics

B.S., M.S., Ph.D., California Institute of Technology

Lt. Col. Ralph F. Jackson, Jr.

Associate Professor of Geography

B.A., M.A., University of Pittsburgh

Capt. Thomas L. Jackson

Instructor in Physics

B.S., United States Naval Academy
M.S., North Carolina State College
M.A., University of Colorado

Capt. Delbert H. Jacobs

Assistant Professor of Astronautics

B.S., United States Military Academy
M.S.A.E., A.E., California Institute of Technology

Capt. Allen L. Jennings, Jr.

Instructor in Chemistry

B.S., United States Military Academy
M.A., University of Texas

1st Lt. Paul C. Jennings

Instructor in Mechanics

B.S., Colorado State University
M.S., Ph.D., California Institute of Technology

Capt. Douglas S. Johnson

Assistant Professor of Mechanics

B.S., United States Military Academy
M.S. (Ae.), Ae.E., California Institute of Technology

Capt. Elliott L. Johnson

Assistant Professor of History

B.A., University of South Dakota
M.A., University of Wisconsin

Capt. John D. Johnston

Instructor in Mathematics

B.S., M.L., University of Pittsburgh

Capt. Douglas N. Jones

Associate Professor of Economics

B.A., University of New Hampshire
M.A., Ph.D., The Ohio State University

Maj. John J. Jones

Associate Professor of History

A.B., Nebraska Wesleyan University
M.A., University of Missouri

Capt. Horst M. Judel

(West German Air Force)

Assistant Professor of German

Ph.D., University of Giessen, Germany

1st Lt. John F. Kain

Assistant Professor of Economics

A.B., Bowling Green State University
M.A., Ph.D., University of California

Capt. Raymond A. Karam

Assistant Professor of Political Science

B.S., United States Military Academy
M.P.A., Harvard University

Capt. James M. L. Karns

Instructor in Economics

B.S., United States Military Academy
M.A., University of Oklahoma

Maj. Raymond H. Kelley

Assistant Professor of Physics

B.S., Montana State College
M.S., The Ohio State University

Capt. Carlin J. Kielcheski*Instructor in Fine Arts*

B.S., M.E., Wisconsin State College

Lt. Col. Marcos E. Kinevan*Associate Professor of Law*B.S., United States Military Academy
LL.B., University of California**Maj. Lowell A. King***Assistant Professor of Chemistry*B.S., Iowa State University
A.M., Washington University
Ph.D., Iowa State University**Capt. Thomas E. Kirchgessner***Instructor in Mechanics*B.S., United States Military Academy
M.S.M.E., Rensselaer Polytechnic Institute**Maj. William A. Kirkman***Assistant Professor of Mathematics*B.A., Willamette University
M.S., University of Colorado**Capt. William H. Kirkman, Jr.***Instructor in Law*

B.S., LL.B., University of North Carolina

Capt. John I. Kitch, Jr.*Assistant Professor of English*

A.B., A.M., University of Illinois

Lt. Normantas Klausutis*Instructor in Chemistry*

B.Ch.E., M.Ch.E., Syracuse University

Maj. Frederick J. Knauss*Associate Professor of Electrical Engineering*B.S., United States Military Academy
M.S., Ph.D., University of Illinois**Capt. Raymond F. Koestner***Instructor in Aeronautics*B.S., United States Military Academy
M.A.E., University of Oklahoma**Maj. Charles Konigsberg***Assistant Professor of Political Science*B.A., Harvard University
M.A., M.P.A., Princeton University**Lt. Col. Richard G. Korthals***Assistant Professor of Aeronautics*B.S., M.S. Astro, Air Force Institute of
Technology**Maj. Otto Kratochvil***Assistant Professor of Law*LL.B., Louisiana State University
LL.M., George Washington University**Capt. Kenneth H. Kronlund***Instructor in Physics*B.S., United States Military Academy
M.S., University of Illinois**Capt. Robert D. Krutz***Instructor in Mathematics*B.S., United States Military Academy
M.A., University of Michigan**Maj. Edgar B. Landers***Assistant Professor of Mathematics*B.S., Milligan College
M.A., George Peabody College for
Teachers**Maj. Phillip N. Larsen***Assistant Professor of Electrical Engineering*B.S., Colorado State University
M.S., Ph.D., University of Illinois**Lt. Col. Richard C. Lathrop***Associate Professor of Electrical Engineering*

B.S., M.S., Ph.D., University of Wisconsin

Capt. Frank J. Leech*Instructor in Physics*B.S., Virginia Military Institute
M.S., Ph.D., The Ohio State University**Capt. Gail L. Legate***Instructor in Physics*B.A., Baylor University
M.A., University of Texas**Maj. Louis G. Leiser***Assistant Professor of Astronautics*B.S., United States Military Academy
M.S., Air Force Institute of Technology**Maj. Harvey K. Leland***Assistant Professor of Mathematics*B.S., University of Southern California
M.S., Stanford University**Capt. Richard E. Lindstrom***Instructor in Chemistry*B.S., University of Connecticut
M.S., Syracuse University**Capt. Theodore R. Loeschner, Jr.***Assistant Professor of Aeronautics*B.S., United States Military Academy
M.S.M.E., Stanford University**Capt. Thomas E. Lucas***Assistant Professor of English*A.M., University of Chicago
Ph.D., University of Denver**Lt. Col. John B. MacWherter***Associate Professor of Mathematics*B.S., United States Military Academy
M.A., Columbia University**Capt. William J. Maroldo***Assistant Professor of English and Philosophy*A.B., Hofstra University
A.M., University of Colorado
M.P.A., New York University

Capt. Wendell H. Massengale

Assistant Professor of Chemistry and Physiology

B.S., Western Kentucky State College
M.S., University of Utah

Capt. Richard W. Masson

Assistant Professor of Political Science
B.S., United States Military Academy
M.A., Baylor University

1st Lt. Richard T. Mathews

Aide to the Dean

B.S., United States Air Force Academy

Maj. John R. B. Matthis

Assistant Professor of Law

B.S., LL.B., Wake Forest College

Capt. James D. McCarthy

Instructor in English and Philosophy

A.B., University of Notre Dame
M.A., The Ohio State University

Capt. Herbert C. McClammy

Assistant Professor of Mechanics

B.M.E., University of Florida
M.S., Air Force Institute of Technology
M.S.E., University of Michigan

Capt. Thomas A. McCreery

Associate Professor of Mechanics

B.S., United States Naval Academy
M.S., Air Force Institute of Technology
Ph.D., University of Illinois

Brig. Gen. Robert F. McDermott

Dean of the Faculty; Permanent Professor

B.S., United States Military Academy
M.B.A., Harvard University
LL.D., St. Louis University

Lt. Col. Thomas U. McElmurry

Instructor in Astronautics

B.S., M.E., University of Alabama
M.S., A.E., University of Michigan

Capt. Robert D. McKelvey

Associate Professor of Astronautics

B.S., United States Military Academy
M.S., Air Force Institute of Technology

Capt. Charles E. McManis

Instructor in French

B.A., Ohio Wesleyan University
M.S., Georgetown University

Capt. Michael J. Mendelsohn

Associate Professor of English

B.A., University of Pittsburgh
M.A., Trinity University
Ph.D., University of Colorado

Capt. David R. Mets

Instructor in History

B.S., United States Naval Academy
M.A., Columbia University

Col. Alfonse R. Miele

Permanent Professor and Head of Department of Foreign Languages

A.B., Fordham University
M.A., Ph.D., Columbia University
Studies, University of Nancy, France

Capt. Robert G. Millard

Instructor in Astronautics

B.S., United States Military Academy
M.S.A.E., A.E., Massachusetts Institute of Technology

Capt. James I. Miller, Jr.

Assistant Professor of English

B.A., M.A., University of Oklahoma
B.A., M.A., Oxford University, England

2nd Lt. Wayne C. Miller

Instructor in English

B.A., St. John's University
M.A., Columbia University

Capt. Edward K. Mills, Jr.

Assistant Professor of Behavioral Sciences

B.S., M.S., University of Utah

Maj. Anthony J. Mione

Instructor in Physics

B.S., United States Military Academy
M.S., North Carolina State College

Capt. Lawrence B. Molnar

Instructor in Astronautics

B.S., United States Naval Academy
S.M., Massachusetts Institute of Technology

Col. Peter R. Moody

Permanent Professor and Head of Department of English

A.B., Wofford College
B.S., United States Military Academy
M.A., Duke University
Ph.D., Cambridge University, England

Capt. Thomas D. Moore, Jr.

Instructor in Electrical Engineering

B.S., United States Naval Academy
M.S., Stanford University

Lt. Col. Rex K. Moorhead

Associate Professor of Mathematics

B.S., M.A., Bowling Green State University

Capt. Richard A. Moran

Assistant Professor of Electrical Engineering

B.S., United States Naval Academy
M.S., Stanford University

Maj. Angelo A. Morinello

Instructor in Aeronautics

B.S. (Math), B.S.M.E., University of Houston
M.S., University of Colorado

1st Lt. Harry L. Morrison

Assistant Professor of Physics
A.B., Ph.D., Catholic University of America

Capt. Roland D. Mower

Instructor in Geography
B.S., University of Utah
M.S., Oklahoma State University

Capt. George W. Muhlbach

Instructor in Behavioral Sciences
B.A., University of Omaha
M.A., Colorado State College

Col. Christopher H. Munch

Permanent Professor and Head of Department of Law; Staff Judge Advocate
B.S., United States Military Academy
J.D., University of Illinois College of Law

1st Lt. George Myro

Assistant Professor of English and Philosophy
B.A., Dartmouth College
M.A., Harvard University

Capt. Albert H. Neubauer, Jr.

Instructor in Mechanics
B.S.M.E., M.S.M.E., Ph.D., Purdue University

Capt. Tyree H. Newton

Assistant Professor of Physiology
B.A., M.S., Baylor University

Maj. Charles A. Neyhart

Assistant Professor of Aeronautics
B.S., Pennsylvania State University
M.S., Air Force Institute of Technology

Capt. Paul E. Nikulla

Instructor in German
B.A., Wichita University
M.A., Syracuse University

Capt. George S. Nixon

Assistant Professor of Spanish
B.A., Brigham Young University
M.A., Middlebury College
Studies, University of Madrid, Spain

Maj. Wayne A. Norby

Instructor in Mathematics
B.S., United States Military Academy
M.S., University of Illinois

1st Lt. Wendell S. Norman

Associate Professor of Aeronautics
B.S., University of Kentucky
M.S.A.E., Ph.D., Purdue University

Maj. George H. Normand

Research Associate; Assistant Professor of Psychology
B.S., Union College
M.A., Columbia University
Prof. Diploma, Teachers College, Columbia University

Capt. Alfred D. Norton

Instructor in Chemistry
B.S., United States Military Academy
B.S., University of Washington
M.S., University of Tennessee

Capt. Nile B. Norton

Instructor in History
B.A., State College of Iowa
M.A., University of Iowa

Capt. Dale E. Noyd

Instructor in Behavioral Sciences
B.S., Washington State University
A.M., University of Michigan

Maj. Ray W. Oesch

Assistant Professor of Mathematics
B.Ed., Illinois State University
M.A., University of Illinois

Capt. Albert F. Oppel

Assistant Professor of Mechanics
B.S., United States Military Academy
M.S.M.E., Texas Technological College

Capt. Jaime Ortiz-Lopez

Assistant Professor of Spanish
B.S., United States Military Academy
M.A., University of Colorado

Lt. Col. George W. Orton

Associate Professor of Mechanics
B.S., University of Kentucky
M.S., Carnegie Institute of Technology
Ph.D., The Ohio State University

Maj. Timothy Osato (U.S. Army)

Associate Professor of Political Science
B.A., Yale University
M.A., Columbia University
M.P.A., Harvard University
Special study in history, University of Florence, Italy

Capt. Gerald H. Parshall

Assistant Professor of Electrical Engineering
B.S., United States Military Academy
M.S.E., E.E., University of Michigan

Capt. Marvin C. Patton

Assistant Professor of Mathematics
B.S., Colorado State University
M.S., University of Colorado

Capt. Orin C. Patton

Research Associate; Assistant Professor of Geography
B.A., M.S., University of Florida

Maj. Thomas E. Pearsall

Associate Professor of English
A.B., Colgate University
M.A., University of Texas
Ph.D., University of Denver

- Capt. Warren G. Peck**
Associate Professor of History
 B.A., M.A., University of Alabama
 Extra-Mural Studies, University of
 Cambridge, England
- Capt. John R. Perkins**
Instructor in Mathematics
 B.A., United States Naval Academy
 M.S., Oklahoma State University
- Maj. Norman L. Phillips**
Associate Professor of Behavioral Sciences
 B.A., University of California at
 Los Angeles
 M.A., University of Houston
- Maj. Thomas A. Phillips, Jr.**
Associate Professor of History
 B.S., United States Military Academy
 M.A., University of Colorado
- Capt. Thomas C. Pinckney**
Assistant Professor of Political Science
 B.A., The Citadel
 M.A., Syracuse University
- Capt. Robert B. Piper**
Assistant Professor of Aeronautics
 B.S.M.E., University of New Hampshire
 M.S.M.E., Stanford University
- Capt. Edward G. Platt, Jr.**
Instructor in Mathematics
 B.S., University of the South
 M.S., Florida State University
- Capt. John T. Poirier**
Assistant Professor of Political Science
 B.S., United States Military Academy
 M.P.A., Harvard University
- Capt. Ben M. Pollard**
Assistant Professor of Aeronautics
 B.S., M.S., Purdue University
- Col. Wesley W. Posvar**
*Permanent Professor and Head of Department
 of Political Science*
 B.S., United States Military Academy
 B.A., M.A., Oxford University, England
- Capt. Richard H. Prater**
Assistant Professor of Physics
 B.S., United States Military Academy
 M.S., University of Colorado
- Capt. Albert E. Preys**
Instructor in Astronautics
 S.B., S.M., E.A.A., Massachusetts Institute
 of Technology
- Maj. Jack L. Price**
Instructor in Mathematics
 B.S., United States Military Academy
 M.S., Massachusetts Institute of
 Technology
- Capt. Edgar F. Puryear, Jr.**
*Assistant Dean for Graduate Programs;
 Assistant Professor of Political Science*
 B.S., University of Maryland
 M.A., University of Denver
 M.A., Ph.D., Princeton University
- Capt. John S. Pustay**
*Executive Assistant to the Dean of the
 Faculty; Social Sciences Division Executive;
 Associate Professor of Political Science*
 B.S., United States Naval Academy
 M.A., San Francisco State College
 Ph.D., University of Denver
- Capt. Ernest L. Pyne**
Instructor in Aeronautics
 B.S., University of Idaho
 M.S.M.E., University of Illinois
- Maj. Alton H. Quanbeck**
Associate Professor of Mechanics
 B.S., United States Military Academy
 M.S., Purdue University
 Ph.D., Stanford University
- Capt. Frederick D. Quick**
Instructor in Physiology
 B.S., M.S., Rutgers University
- Capt. Robert Raful**
Instructor in Behavioral Sciences
 B.S., University of California
 M.B.A., Syracuse University
- Lt. Col. Oscar H. Rechtschaffen**
*Associate Professor of Political Science;
 Special Research Associate, Library*
 B.S., University of Maryland
 M.A., George Washington University
- Maj. Robert P. Reid**
Assistant Professor of English
 A.B., University of New Hampshire
 A.M., Harvard University
- Maj. Everest E. Riccioni**
Assistant Professor of Astronautics
 B.S.A.E., M.S. Appl. Math, University of
 Minnesota
- Maj. Gerald F. Richter**
Associate Professor of English
 B.A., Nebraska State College
 M.A., Northwestern University
- Capt. Roger M. Rickey**
Instructor in History
 B.S., Wisconsin State College
 M.A., University of Wisconsin

Capt. John C. Ries

Assistant Professor of Political Science
 B.A., University of Santa Clara
 M.A., University of Detroit
 Ph.D., University of California at
 Los Angeles

Capt. Charles W. Roades

Instructor in English
 B.S., United States Military Academy
 M.A., University of Washington

Maj. Donald O. Robb

Assistant Professor of Mathematics
 B.S., United States Military Academy
 M.S., University of Michigan

Maj. William M. Roberts, Jr.

Assistant Professor of Geography
 B.A., M.A., State University of Iowa

Capt. Davis C. Rohr

Assistant Professor of History
 B.S., United States Military Academy
 M.A., University of Washington

1st Lt. Charles N. Rollinger

Assistant Professor of Mathematics
 B.M.E., University of Detroit
 M.S., Ph.D., Northwestern University

Maj. Wells P. Rollins

Assistant Professor of Mathematics
 B.S., United States Naval Academy
 M.S., University of Illinois

1st Lt. Erik S. Ronhovde

Instructor in Political Science
 A.B., Harvard College
 Doctoral Candidate, University of
 Oxford, England

Capt. Robert D. Rose (U.S. Army)

Instructor in Physics
 B.S., United States Military Academy
 M.E.P., University of Virginia

Maj. Alfred E. Ross

Assistant Professor of Mathematics
 B.S.A.E., University of Minnesota
 M.S.A.E., Massachusetts Institute of
 Technology

Capt. Thomas E. Ross, Jr.

Instructor in Aeronautics
 B.S., United States Military Academy
 M.A.S.E., University of Oklahoma

Capt. Richard F. Rosser

Associate Professor of Political Science
 B.A., Ohio Wesleyan University
 M.P.A., Ph.D., Syracuse University

Capt. Edward T. Ryan

Assistant Professor of German
 B.A., St. Mary's College, California
 M.A., Universidad Interamericana,
 Mexico
 Studies, Goethe-Institut, Germany

Maj. Malcolm E. Ryan, Jr.

*Academic Scheduling Officer; Associate
 Professor of Mathematics*
 B.S., United States Military Academy
 M.S., University of Colorado

Col. Wilbert H. Ruenheck

*Permanent Professor and Head of
 Department of History*
 A.A., Kemper Military School
 A.B., Washington University
 A.M., Ph.D., New York University

Capt. Ronald E. Rule

Instructor in Mechanics
 B.S., United States Military Academy
 M.S.E., Princeton University

Capt. Richard E. Russell

Assistant Professor of Aeronautics
 B.A., St. Louis University
 M.S.A.E., Air Force Institute of Technology

Capt. Donald M. Sackschewsky

Instructor in Mathematics
 B.S., Colorado State University
 M.A., University of Colorado

Col. Charles W. Sampson

*Professor and Acting Head of Department
 of Mechanics*
 B.S., United States Military Academy
 M.S., The Ohio State University

Maj. John H. Saxon, Jr.

Instructor in Electrical Engineering
 B.S., United States Military Academy
 M.E.E., University of Oklahoma

Capt. Edward P. Schelonka

Instructor in Electrical Engineering
 B.S.E.E., University of Wisconsin
 M.S.E.E., Air Force Institute of
 Technology

Capt. James D. Schlatter

Instructor in Physiology
 A.B., Indiana University
 M.S., Kansas State University

Capt. John Schligh

Assistant Professor of History
 B.A., St. Vincent College
 M.A., Fordham University
 M.A., Princeton University

Capt. Grover J. D. Schock
*Research Associate; Assistant Professor
 of Physiology*
 B.S., M.S., Ph.D., University of Illinois

Capt. Stephen E. Schoderbek
Assistant Professor of Economics
 B.S., United States Naval Academy
 M.S., University of Wyoming

Capt. Sterling E. Schultz
Instructor in Mathematics
 B.S., M.S., University of Arizona

Maj. Brent Scowcroft
Associate Professor of Political Science
 B.S., United States Military Academy
 M.A., Columbia University

Maj. John H. Scrivner, Jr.
Instructor in History
 B.A., University of Kansas
 M.A., University of Oklahoma

Capt. David W. Seegmiller
Assistant Professor of Chemistry
 B.S., M.S., Brigham Young University
 Ph.D., University of California, Berkeley

1st Lt. Bernard B. Selling
Instructor in English
 B.A., M.A., University of Michigan

Maj. Jack E. Sexson
Assistant Professor of Behavioral Sciences
 B.A., Colorado State College
 M.Ed., Trinity University
 Ed.D., Colorado State College

Capt. William R. Shaw
Instructor in Aeronautics
 B.S.M.E., University of Idaho
 M.S.M.E., Stanford University

Capt. Donald E. Sheehan
Instructor in English
 B.S., United States Military Academy
 M.A., University of Illinois

Capt. Alfred E. Sheldon, Jr.
Instructor in English
 B.S., United States Military Academy
 M.A., Washington State University

Capt. Donald A. Slezak
Instructor in Mathematics
 B.S., Oklahoma State University
 M.S., Massachusetts Institute of
 Technology

Capt. Duane W. Smetana
Instructor in Mechanics
 B.S., United States Military Academy
 M.S., Air Force Institute of Technology

Capt. Douglas L. Smith
Assistant Professor of Physiology
 B.S., Ph.D., University of Utah

Col. Herman F. Smith
*Professor and Head of Department of
 Behavioral Sciences*
 B.A., M.A., George Washington University

Capt. Mark E. Smith, III
Instructor in Political Science
 B.S., United States Military Academy
 A.M., University of Chicago

Capt. Leo V. Sovinsky
Assistant Professor of Russian
 B.A., New York University
 M.A., Columbia University

Maj. Edwin C. Spencer
Assistant Professor of Mathematics
 B.S., Glassboro State College
 M.S., University of Pennsylvania

Maj. Michael J. Steger
Assistant Professor of Mathematics
 B.S., United States Military Academy
 M.S., Texas A&M University

Capt. William J. Stelpflug
Instructor in Aeronautics
 B.S.M.E., University of Notre Dame
 M.S.M.E., University of Colorado

Capt. Eldon L. Stevens
Assistant Professor of English and Philosophy
 B.A., M.A., University of Minnesota

Maj. Everett E. Stevenson
Associate Professor of Mathematics
 B.S., State College at Buffalo, State
 University of New York
 M.Ed., University of Houston
 Ph.D., The Ohio State University

Capt. Robert A. Stewart
Assistant Professor of Mechanics
 B.S., United States Military Academy
 M.S., University of Maryland

Maj. Robert E. Stockhouse
Associate Professor of Behavioral Sciences
 B.S., Black Hills Teachers College
 M.A., Columbia University
 Ed.D., Stanford University

Lt. Col. Donald M. Stonebraker
Instructor in Electrical Engineering
 B.S., M.S., University of Colorado

Capt. Floyd R. Stuart
Instructor in Mathematics
 B.S., United States Naval Academy
 M.S.A.E., A.E., California Institute of
 Technology

Capt. Victor D. Sutch

Assistant Professor of History
B.A., Olivet College
M.A., Western Reserve University
Ph.D., University of Colorado

Capt. Lawrence B. Tatum

Assistant Professor of Political Science
B.S., United States Military Academy
Ph.D., Syracuse University

Lt. Col. Robert G. Taylor

Associate Professor of Economics and Geography
B.A., University of California at Los Angeles
M.A., Ph.D., Indiana University

Capt. Jay D. Terry

Instructor in Law
B.A., State University of Iowa
LL.B., Georgetown University

Maj. Clyde M. Thomas

Instructor in Law
LL.B., University of Georgia
M.B.A., George Washington University

Maj. Roland E. Thomas

Associate Professor of Astronautics
B.S., New Mexico State University
M.S., Stanford University
Ph.D., University of Illinois

Maj. Joseph J. Thompson

Instructor in Mathematics
B.S., United States Military Academy
M.S.E.E., Air Force Institute of Technology

Maj. William J. Thorpe

Humanities Division Executive; Associate Professor of History
B.S., M.A., University of Minnesota

Capt. John B. Tindall

Instructor in Mathematics
B.S., United States Military Academy
M.S., University of Utah

Capt. Thomas M. Tomaskovic

Instructor in Chemistry
B.S., Pennsylvania State University

Capt. Vernon R. Van Vonderen

Assistant Professor of Chemistry
B.S., United States Military Academy
M.S., University of Colorado

Maj. Servando J. Velarde, Jr.

Associate Professor of Spanish
B.S., M.A., New York University

Capt. Joseph L. N. Violette

Instructor in Electrical Engineering
B.E.E., Rensselaer Polytechnic Institute
Doctoral Candidate, North Carolina State College

Maj. Arthur C. Voudouris

Instructor in French
B.A., Harvard University
M.A., Boston University

Capt. Malham M. Wakin

Assistant Professor of English and Philosophy
A.B., University of Notre Dame
A.M., State University of New York
Ph.D., University of Southern California

Maj. Edward T. Walford

Assistant Professor of Chemistry
B.S., Purdue University
M.S., University of Michigan

Capt. Bruce M. Wallace, Jr.

Instructor in Political Science
B.S., United States Military Academy
M.A., Stanford University

Wg. Cmdr. James Walsh (Royal Air Force)

Assistant Professor of Political Science
B.A., DIP. ED., Durham University, England

Maj. John A. Walter

Associate Professor of Behavioral Sciences
B.S., United States Military Academy
B.A., M.B.A., Syracuse University

Capt. William E. Ward

Instructor in Physiology
B.A., The Ohio State University
M.A., Duke University

Capt. Walter E. Ware

Assistant Professor of Physics
B.S., United States Naval Academy
Ph.D., University of Colorado

Capt. Carl R. Webb

Assistant Professor of Mathematics
B.S., United States Naval Academy
M.A., University of California at Los Angeles

Capt. John W. Welch

Assistant Professor of Aeronautics
B.S., Ag.E., B.S.A.E., M.S.A.E., Texas A&M University

Capt. John A. Wesner

Instructor in Electrical Engineering
B.S., United States Military Academy
M.S.E.E., University of Nebraska

Maj. Fredrick R. Westfall

Associate Professor of Physics
B.S., United States Military Academy
M.S., Ph.D., North Carolina State College

Capt. Jerry D. Wethington

Assistant Professor of Mathematics
B.S., University of New Mexico
M.S., Stanford University

Capt. Paul A. Whelan

Instructor in History
B.S., College of the Holy Cross
M.A., University of Tennessee

Maj. Robert W. White

Assistant Professor of Electrical Engineering
B.S., United States Military Academy
M.S., University of Illinois

Capt. Richard E. Willes

Instructor in Aeronautics
B.S., United States Naval Academy
S.M.A.A., E.A.A., Massachusetts Institute of Technology

Col. James V. G. Wilson

*Associate Dean for Academic Affairs;
Permanent Professor of Electrical Engineering*
B.S., United States Military Academy
M.S., University of Illinois

Maj. John P. Wittry

Instructor in Astronautics
B.S., St. Louis University
M.S., Air Force Institute of Technology
Aero & Astro E., University of Michigan

Col. Henry E. Wojdyla

Associate Professor of Behavioral Sciences
B.A., Sacramento State College
M.A., Baylor University

Col. William T. Woodyard

Permanent Professor and Head of Department of Chemistry and Physiology
B.S., A.M., University of Missouri

Maj. George E. Yale, Jr.

*Engineering Sciences Division Executive;
Associate Professor of Aeronautics*
B.S., M.S., University of Minnesota

Capt. Richard P. Yantis

Instructor in Mathematics
B.S., United States Naval Academy
M.A., University of North Carolina

Col. Wayne A. Yeoman

Permanent Professor and Head of Department of Economics and Geography
B.S., United States Military Academy
M.B.A., Harvard University

Maj. Yuan Hsi-Jou (Chinese Nationalist Air Force)

Instructor in Chinese
B.S., National Normal University (Peiping)
Lecturer, National Northeastern University (Shen-yang)

Capt. Frank J. Zagorski

Associate Professor of Russian
B.S., United States Military Academy
M.P.I.A., University of Pittsburgh
Studies, Goethe-Institut, Germany

Capt. David D. Zink II

Assistant Professor of English
B.J., University of Texas
M.A., Ph.D., University of Colorado

Capt. Richard Zock

Instructor in Economics
B.A., Dartmouth College
M.B.A., Amos Tuck School of Business Administration, Dartmouth College

The Leadership and Military Training Program

In the duty titles that follow, AOC is an abbreviation for Air Officer Commanding.

Capt. Richard F. Abel

AOC, 5th Cadet Squadron
B.S., University of Detroit

CWO, W4, James M. Adams

Administrative Officer

Capt. Lewis S. Andrews III

Plans and Scheduling Officer
B.S., United States Military Academy

Lt. Col. Benjamin H. Ashmore

AOC, 1st Cadet Group
B.B.A., University of Omaha

Capt. Arthur N. Askew

AOC, 3d Cadet Squadron
B.S., Tulsa University

Capt. John E. Bales

Assistant AOC, 6th Cadet Squadron
B.A., Baylor University

Lt. Col. Homer A. Baker, Jr.

Director of Personnel and Administration
University of California

Capt. Robert W. Bazley

Plans and Scheduling Officer
B.S., University of Pittsburgh

Capt. Richard H. Bentz
Assistant AOC, 10th Cadet Squadron
 B.S., United States Military Academy

Capt. Robert C. Beyer, Jr.
Assistant AOC, 2d Cadet Squadron
 B.S., United States Military Academy

Capt. Alain G. Boughton
Assistant AOC, 3d Cadet Squadron
 B.A., Rice Institute

Capt. James E. Briggs, Jr.
Assistant Special Activities Officer
 B.S., United States Military Academy

Capt. Thomas R. Briscoe
Course Director in Navigation
 B.A., University of Oklahoma

Lt. Col. George A. Brown
Chief, Training Division
 B.S., United States Military Academy

Lt. Col. Elvin E. Burnett
Director of Materiel
 B.S., University of Maryland

Lt. Col. Edward J. Cavanaugh (U.S. Army)
Course Director in Military Training
 B.S., United States Military Academy

Capt. William M. Charles, Jr.
AOC, 23d Cadet Squadron
 B.S., United States Military Academy

Capt. Lloyd R. Chason
Assistant AOC, 8th Cadet Squadron
 B.S., East Carolina College
 M.A., Baylor University

Lt. Col. William G. Christensen
Executive Officer, Operations and Training
 B.A., Baylor University

Capt. Robert P. Christiansen
Assistant AOC, 17th Cadet Squadron
 B.S., United States Military Academy

Maj. Kelly F. Cook
AOC, 19th Cadet Squadron
 B.S., University of Notre Dame
 M.A., University of North Carolina

Maj. Alan Coville
Course Director in Military Training
 B.A., Marlboro College

Lt. Col. James B. Crump
AOC, 2d Cadet Group
 University of Oregon

Col. John F. Daye, Jr.
Deputy Commandant of Cadets
 B.S., United States Military Academy

Capt. George M. Decell III
Assistant AOC, 7th Cadet Squadron
 B.S., United States Naval Academy

CWO, W-4, Frederick W. Dent
Chief of Personnel

LCDR Richard C. Doan (U.S. Navy)
Course Director in Military Training
 B.S., United States Naval Academy

Capt. Ward K. Dodge
AOC, 16th Cadet Squadron
 B.S., Kansas State College

Lt. Col. William P. Dougan
Chief, Navigation Division
 B.S., University of Tennessee

Maj. Joseph J. Drach
Course Director in Military Training
 B.S., University of Maryland

Capt. Harry E. Drennan
AOC, 18th Cadet Squadron
 B.A., Michigan State University

Capt. John R. Evanko
Plans and Scheduling Officer
 B.S., Fairfield University

CWO, W-3, Leon O. Files
Food Services Officer

Lt. Col. David E. Fitton, Jr.
AOC, 3d Cadet Group
 B.S., United States Military Academy

Sq. Ldr. Anthony J. Fookes (RAAF)
Course Director in Military Training

Capt. John Ford
AOC, 21st Cadet Squadron
 B.A., University of Minnesota

Lt. Col. John P. Gaffney
AOC, 4th Cadet Group
 Kent State University

Capt. Jack W. Gentry
AOC, 14th Cadet Squadron
 B.A., University of Tulsa

Capt. Henry W. Green, Jr.
Course Director in Navigation
 B.S., University of California

Capt. John A. Hall
AOC, 10th Cadet Squadron
 B.A., University of Mississippi

Maj. Isaac M. Hamilton
AOC, 7th Cadet Squadron
 B.S., University of Southwestern
 Louisiana

Capt. Thomas R. Hataway
Officer-in-Charge, Cadet Services
 B.B.A., Baylor University

Col. James H. Heaberg
Director of Operations and Training
 B.S., Lambuth College

Wg. Cmdr. Walter J. Herrington (RAF)
Course Director in Military Training
 London University

Capt. Joseph L. Hotard III
Officer-in-Charge, Cadet Dining Hall
 B.S., University of Southwestern
 Louisiana

Capt. Alvin H. Hufford
AOC, 24th Cadet Squadron
 B.S., Kent State University

Capt. Jerry L. Jarnagin
Assistant AOC, 4th Cadet Squadron
 B.S., University of Chattanooga

Capt. Ted W. Jensen
AOC, 20th Cadet Squadron
 B.A., University of Iowa
 M.A., University of Denver

Capt. Ralph M. Jordan, Jr.
Assistant AOC, 1st Cadet Squadron
 B.S., University of North Carolina

Capt. Lyman M. Kidder
AOC, 9th Cadet Squadron
 B.A., University of Colorado

Maj. John M. Kirk
Course Director in Navigation
 B.S., United States Naval Academy

Maj. William R. Lambert
AOC, 22nd Cadet Squadron
 B.S., United States Military Academy
 M.S., University of Colorado

Capt. James W. Leland
Operations Officer
 B.S., United States Military Academy

CWO, W-3, David E. Lockwood
Officer-in-Charge, Cadet Supply
 The Ohio State University

Capt. Charles E. MacWilliams
Assistant AOC, 9th Cadet Squadron
 B.S., United States Military Academy

Maj. William J. Mahon
Course Director in Navigation
 B.S., University of Houston
 M.A., Columbia University

Capt. Frederick A. Mathews
 (U.S. Marine Corps)
AOC, 4th Cadet Squadron
 B.S., United States Naval Academy

Capt. Harold A. Mauger, Jr.
AOC, 8th Cadet Squadron
 B.S., The Citadel

Maj. Robert O. McCartan
Course Director in Navigation
 B.A., Arizona State University

Maj. Leon W. McCrary
Chief, Plans and Scheduling
 B.S., United States Military Academy

Flt. Lt. John E. McFadden (RCAF)
Course Director in Military Training

Capt. Charles H. Milian, Jr.
Course Director in Military Training
 B.S., University of Florida

Capt. Walter D. Miller
Course Director in Military Training
 B.S., Memphis State College

Lt. Col. Wallace E. Moore
Course Director in Navigation
 Purdue University

Lt. Col. Clyde V. Myers
Officer-in-Charge, Cadet Store
 B.S., Florida State University
 M.S., New York University

Capt. Gerald J. Naber
AOC, 20th Cadet Squadron
 B.S., United States Military Academy

Capt. Glenn L. Nordin
Assistant AOC, 12th Cadet Squadron
 B.S., Superior State College
 M.A., University of Texas

Capt. Roland L. Nordlie
AOC, 13th Cadet Squadron
 B.S., United States Military Academy
 B.S., M.S., University of Colorado

Capt. Robert E. Olson
Course Director in Navigation
 B.S., United States Military Academy

Capt. Robert A. Owens
AOC, 12th Cadet Squadron
 B.S., United States Naval Academy

Capt. Gilbert S. Palmer, Jr.
Assistant AOC, 11th Cadet Squadron
 B.S., University of Alabama

Capt. Milton R. Peterson
AOC, 11th Cadet Squadron
 B.S., University of California at
 Los Angeles

Capt. Robert F. Pheiff
Assistant AOC, 22d Cadet Squadron
 B.S., United States Military Academy

Capt. Larry W. Pritchett
Assistant AOC, 23d Cadet Squadron
 B.A., Willamette University

Maj. Kenneth Ramey
Assistant Director of Materiel
 University of Maryland

Capt. Donald W. Rayment
Assistant AOC, 13th Cadet Squadron
 A.B., Bowdoin College

Maj. John F. Reilly
Plans and Scheduling Officer
 B.S., Florida Southern

Maj. Laurence J. Rooney
AOC, 1st Cadet Squadron
 Southeastern State College, Okla.

CDR Sam Rorex, Jr., (U.S. Navy)
Course Director in Military Training
 A.B., Marion Military Institute
 B.S., United States Naval Academy

Capt. Edwin L. Rosane
Aide to the Commandant of Cadets
 B.S., United States Air Force Academy

Capt. Edwin F. Rumsey
Assistant AOC, 18th Cadet Squadron
 B.S., United States Military Academy

Capt. William J. Ryan
AOC, 17th Cadet Squadron
 B.S., United States Military Academy

Lt. Thomas P. Scott (U.S. Navy)
Assistant AOC, 16th Cadet Squadron
 B.S., United States Naval Academy

Capt. Donald W. Service
Assistant AOC, 14th Cadet Squadron
 B.S., St. Cloud State College

Maj. William T. Shelton
Course Director in Military Training
 B.S., East Carolina College

Capt. Gilbert J. Sinnott
Course Director in Military Training
 B.A., College of the Holy Cross

Capt. Billy J. Smith
Course Director in Navigation
 B.B.A., Texas A&M University

Capt. Donald D. Smith
AOC, 6th Cadet Squadron
 B.S., United States Naval Academy

Capt. Jimmy L. Smith
Assistant AOC, 15th Cadet Squadron
 B.S., United States Naval Academy

Capt. Daniel M. Stark
Course Director in Navigation
 B.S., United States Naval Academy

Maj. Charles S. Steen (U.S. Army)
AOC, 15th Cadet Squadron
 B.S., United States Military Academy

Capt. Harvey J. Stewart
AOC, 2d Cadet Squadron
 B.S., Texas Technological College

Brig. Gen. Robert W. Strong, Jr.
Commandant of Cadets
 B.S., United States Military Academy

Capt. Wallace H. Thompson
Course Director in Navigation
 B.S., M.S., Oregon State College

Capt. James A. Turner, Jr.
Chief, Special Activities Division
 B.A., Albion College

Capt. Donald J. Underwood, Jr.
Course Director in Navigation
 B.A., The Ohio State University

Capt. Ron V. Villafranco
Course Director in Navigation
 B.S., Fordham University

Capt. Rudolph F. Wacker
Course Director in Military Training
 B.S., United States Military Academy

Capt. Frank G. Walton (U.S. Army)
AOC, 24th Cadet Squadron
 B.S., United States Military Academy

Capt. Don W. Whittingham
Course Director in Navigation
 Alexander Hamilton Business School

Maj. Monte D. Wright
Course Director in Navigation
 B.A., M.A., Baylor University

Physical Education and Athletics

1st Lt. Paul C. Aehnlich

*Instructor in Physical Education;
Assistant Swimming Coach*
B.A., San Francisco State College

Maj. Ronald G. Allen

*Instructor in Physical Education; Golf Coach;
Assistant Basketball Coach*
B.S., M.S., University of Kentucky

Capt. Paul F. Arata

Instructor in Physical Education
B.S., North Carolina State College
M.S., University of New Mexico

Arne U. Arnesen

*Instructor in Physical Education;
Cross-Country Coach; Track Coach*
B.S., University of Wisconsin
M.S., Springfield College

Maj. Thor P. Baumgardner

Chief of Personnel, Cadet Athletics

Lt. Col. Felix A. Blanchard

Executive Officer, Cadet Athletics
B.S., United States Military Academy

James N. Bowman

*Chief of Cadet Athletics
Candidate Counseling
Freshman Football Coach*
B.S., University of Michigan

Capt. Anthony R. Cillo

Instructor in Physical Education
B.S., Rutgers University
M.S., University of Illinois

Capt. Basil L. Ciriello

Freshman Basketball Coach
B.S., George Washington University

Capt. David H. Coats

*Instructor in Physical Education; Assistant
Golf Coach*
B.S., New Mexico State College
M.S., University of Oregon

James I. Conboy

Athletic Trainer
A.B., University of Denver
R.P.T., University of Colorado

Capt. Lloyd C. Corder

*Instructor in Physical Education;
Assistant Track Coach*
B.S., East Texas State College

Maj. Richard L. Dadds

Ticket Manager

Capt. Richard L. Fritts

*Instructor in Physical Education;
Assistant Wrestling Coach*
B.S., Rutgers University

Capt. Stephen E. Galios

Assistant Football Coach
B.S., United States Air Force Academy

Capt. Sidney A. Glenn

*Chief, Instructional Division; Instructor in
Physical Education*
B.A., M.A., Arizona State University

Capt. John N. Gordon

*Chief, Research and Evaluation Division;
Instructor in Physical Education*
B.A., Syracuse University
M.A., University of Denver

Capt. James A. Halvorson

Instructor in Physical Education; Ski Coach
B.S., University of Wisconsin

Capt. Donald V. Hicks

Candidate Counseling, Cadet Athletics
B.S., Bradley University

Capt. Thomas J. Jozwiak

Candidate Counseling, Cadet Athletics
B.S., United States Air Force Academy

Capt. John V. Kardach

*Instructor in Physical Education; Assistant
Basketball Coach*
B.S., University of Wisconsin

Leland Kendall

Assistant Football Coach
B.S., Oklahoma State University

Capt. Max D. Kennedy

Instructor in Physical Education
B.S., University of Nebraska

Karl A. Kitt

*Instructor in Physical Education;
Wrestling Coach*
B.S., Southwestern State Teachers
College, Oklahoma

Lt. Col. Victor R. Kregel

Intercollegiate Scheduling Officer
B.S., University of Maryland

Capt. Harry F. Lenahan, Jr.

Candidate Counseling, Cadet Athletics
B.A., King's College, Pa.

Capt. Nicholas A. Liontas

*Instructor in Physical Education; Assistant
Football Coach*
B.S., United States Naval Academy

Capt. Thomas C. Lynch
Instructor in Physical Education; Assistant Tennis Coach
 B.S., United States Naval Academy

Ben S. Martin
Head Football Coach
 B.S., United States Naval Academy

Maj. David McDaniel
Comptroller
 B.S., University of Florida
 M.A., Air Force Institute of Technology

Capt. James R. Mefford
Coordinator of Materiel Requirements
 B.S., University of Kentucky

Joseph C. Moss
Assistant Football Coach
 B.S., University of Maryland

Capt. Robert E. Nugent
Instructor in Physical Education; Swimming Coach
 B.S., Rutgers University

Capt. Godwin Ordway III (U.S. Army)
Instructor in Physical Education; Assistant Football Coach
 B.S., United States Military Academy

Maj. Laurence E. Owens
Deputy Head of PE Department; Tennis Coach
 B.S., Iowa State University
 M.A., Colorado State College of Education
 P.E.D., Indiana University

Robert D. Peck, Jr.
Head of Sports Publicity
 B.S., University of Omaha

Capt. David J. Phillips
Candidate Counseling, Cadet Athletics
 B.S., United States Air Force Academy

Maj. Phillip S. Porter
Instructor in Physical Education
 B.S., United States Military Academy

Lt. Col. William E. Quinlan
Chief, Support Division
 B.S., University of Wyoming
 M.S., San Jose State College

Capt. Bernie Raetz
Junior Varsity Football Coach
 B.S., St. Thomas College

Col. Edmund A. Rafalko
Director of Athletics
 B.S., United States Military Academy
 M.A., George Washington University

Maj. Wilbert H. Richarz
Chief Intramural Division; Instructor in Physical Education; Soccer Coach
 B.S., Trinity University

Capt. Leroy J. Salem
Instructor in Physical Education
 B.S., M.A., Iowa State University

1st Lt. Orwyn Sampson
Instructor in Physical Education; Assistant Gymnastics Coach
 B.S., M.S., University of California at Los Angeles

John Schwall
Special Assistant to the Director of Athletics

Homer A. Smith
Assistant Football Coach
 B.A., Princeton University
 M.B.A., Stanford University

Lt. Col. John S. Sparks, Jr.
Head of Department of Physical Education; Baseball Coach
 B.S., Texas Christian University
 M.S., University of Texas

Lt. Col. (Ret.) Robert B. Spear
Head Basketball Coach
 A.B., DePauw University

Capt. Leonard H. Stanford
Instructor in Physical Education; Assistant Baseball Coach
 B.S., Michigan State University

Capt. Jack M. Steger
Chief, PE Administrative Branch; Assistant Track and Cross Country Coach
 B.S., New Mexico AGM College
 M.A., Indiana University

Capt. Donald T. Steinbrunner
Assistant Football Coach
 B.S., Washington State University

Capt. James H. Tanaka
Instructor in Physical Education; Gymnastics Coach
 B.S., M.S., Florida State University

Nicholas G. Toth
Instructor in Physical Education; Fencing Coach
 Central Institute of Sports and Fencing Academy, Budapest, Hungary

Capt. Marion R. Watson
Instructor in Physical Education
 B.S., University of Connecticut

FRANK J. SEILER RESEARCH LABORATORY

Col. Richard C. Gibson

Commander, Frank J. Seiler Research Laboratory; Professor of Astronautics
B.S., M.S., Sc.D., Massachusetts Institute of Technology

Maj. Orlando J. Mancini, Jr.

Director of Aerospace Mechanics Research
B.S., United States Naval Academy
M.S.E., Ph.D., University of Michigan

Maj. William D. Marsland, Jr.

Director of the Computer Center; Assistant Professor of Mathematics
B.A., M.A., New York State College for Teachers

Gennady M. Kosolapoff

Director of Chemical Research; Visiting Research Fellow (Professor of Chemistry, Auburn University)
B.S., Cooper Union
M.S., Sc.D., University of Michigan

Maj. Charles A. Arpke

Research Associate
B.A., M.A., Ph.D., University of Nebraska

Maj. Robert H. Johnston

Research Associate; Assistant Professor of Mathematics
B.S., M.A., Miami University

Capt. Robert W. Lamb

Research Associate; Associate Professor of Chemistry
B.S., Arizona State University
M.A., New Mexico Highlands University
Ph.D., University of Colorado

Capt. Daniel D. Traficante

Research Associate; Instructor in Chemistry
B.S., Syracuse University
Ph.D., Massachusetts Institute of Technology

Capt. Rinaldo F. Vachino

Research Associate
B.S., Newark College of Engineering
M.S., Air Force Institute of Technology

1st Lt. William R. Alford

Research Associate
B.S., The Citadel
Ph.D., Tulane University

1st Lt. Clair J. Cheer

Research Associate
Ph.D., Wayne State University

1st Lt. James E. Funk

Research Associate
B.S., University of Colorado
M.S., Air Force Institute of Technology

1st Lt. Weldon E. Schaefer

Research Associate
B.S., M.S., Texas Technological College

1st Lt. Allan F. Schanzle

Research Associate
Aero. Eng., M.S., Ph.D., University of Cincinnati

1st Lt. Charles F. Stebbins

Research Associate
B.S., United States Air Force Academy
M.S., Ae.E., California Institute of Technology

SERVICES AND ADMINISTRATION

Superintendent's Staff

Lt. Col. Sigurd J. Jensen, Jr.

Executive Officer
B.A., Western Maryland College

Lt. Col. Brice E. Macartney

Special Assistant to the Chief of Staff; Liaison for the Academy Foundation
University of Maryland

Maj. Dick M. Hofman

Special Assistant to the Superintendent
B.S., University of Maryland

Maj. Robert W. Koernig

Special Assistant to the Superintendent; Assistant Professor of Political Science
B.S., University of Maryland
B.A., M.A., George Washington University
LL.B., LaSalle University

Cadet Chaplains

Col. Rosario L. U. Montcalm

Catholic Chaplain
St. Hyacinthe Seminary, P.Q., Canada
B.A., University of Montreal, P.Q., Canada
Priest, St. Mary's Seminary, Baltimore, Md.

Lt. Col. Harold D. Shoemaker

Protestant Chaplain
B.S., Anderson College, Ind.
B.D., M.A., Butler University
Th.D., Golden State University
Ed.S., Indiana University

Capt. Marvin L. Labinger

Jewish Chaplain
B.A., Brooklyn College
B.H.L., Seminary College of Jewish Studies
M.H.L., Jewish Theological Seminary of America

Staff Judge Advocate

Col. Christopher H. Munch
Staff Judge Advocate
 B.S., United States Military Academy
 J.D., University of Illinois

Maj. Thomas J. Krauska
Deputy Staff Judge Advocate
 LL.B., St. Louis University

Academy Band

Capt. Arnald D. Gabriel
Commander, Air Force Academy Band
 B.S., M.S., Ithaca College

Academy Hospital

Col. Harry C. Green, Jr.
Command Surgeon
 M.D., University of Louisville

Col. Orville J. Eslick
Executive Officer

Col. Leonard S. Johnston, Jr.
Director of Academy Dental Services
 D.D.S., Washington University,
 St. Louis, Mo.

Lt. Col. John E. Coles
Director of Hospital Services
 B.A., University of California
 M.D., Johns Hopkins University

Lt. Col. Hilda R. Echols
Director of Nursing Services
 R. N. Kings Daughters Hospital,
 Greenville, Miss.

Maj. Wallace G. Haworth
Director of Aerospace Medical Services
 M.D., University of Oregon
 MPH., Johns Hopkins University

Academy Library

Col. George V. Fagan
Director of the Library
 B.S., M.A., Temple University
 M.A.L.S., University of Denver
 Ph.D., University of Pennsylvania

Lt. Juergen A. Heise
Executive Officer
 B.A., M.A., Syracuse University

Donald J. Barrett
Chief of Public Services
 B.S., College of St. Thomas

Gilbert L. Campbell
Chief of Acquisitions
 B.S., Purdue University
 B.S.L.S., University of Illinois

Richard L. Gobble
Chief of Cataloging and Processing
 B.S.B.A., M.A.L.S., University of Denver

Information Services

Col. Richard P. Haney
Director of Information
 University of Texas

Lt. Col. Roland C. Beasley
Chief, Visitor Control Division
 B.S., University of Maryland
 M.A., University of Connecticut

Maj. John W. Keeler
Information Officer
 Virginia Polytechnic Institute

Maj. Robert A. Webb
Information Officer
 George Washington University

Capt. Wm. Murray Mack
Information Officer
 B.A., University of Maryland

Capt. Erwin R. Ziff
Assistant Chief, Visitor Control Division
 B.A., Brooklyn College

Cadet Registrar

Col. Virgil J. O'Connor
Registrar
 B.A., State College of Iowa
 M.A., University of Michigan
 Ed.D., Harvard University

Admissions

Lt. Col. Charles C. Anderson, Jr.
Director of Admissions
 B.A., M.A., Sacramento State College

Capt. Aldred W. Jones
Assistant Director of Admissions
 A.B., Haverford College

Evaluation

Lt. Col. Cary A. Thompson, Jr.
Director of Evaluation
 B.A., Hampden-Sydney College

Risdon J. Westen
Chief of Research Division
 B.S., University of Illinois
 Doctoral Candidate, University of Denver

Dr. George Cronkhite
Chief of Examinations Division
 B.A., Gooding College
 M.S., Ed.D., University of Utah

Cadet Records

Maj. Richard O. Fischer
Director of Cadet Records
 B.S., University of Nebraska
 M.A., University of Iowa

Cadet Counseling

Maj. Bernard M. Smith
Director of Cadet Counseling
 B.S., M.A., University of Louisville
 M.A., D.Ed., University of Kentucky

Capt. Joseph P. Bevilacqua
Assistant Director of Cadet Counseling
 B.S., St. Joseph's College, Philadelphia
 M.A., M.Ed., Pennsylvania State University

Candidate Advisory Service

Lt. Col. Floyd C. Ethridge
Director of Candidate Advisory Service
 B.A., Sacramento State College

Assistant Directors:

Maj. Arthur S. Knies
 B.S.B.A., M.Ed., Rutgers University

Capt. Stuart W. Shadbolt
 B.A., Franklin and Marshall College

Capt. Billy W. Baker
 B.S., Austin Peay State College
 M.A., Michigan State University

Capt. James W. Cooksey
 B.S., Ohio State University
 M.A., San Francisco State College

Miss Ruth Whitaker
Publications Editor
 B.S., M.S., North Texas State University

LIAISON OFFICER COORDINATORS

Liaison Officer Coordinators are Air Force Reserve Officers, not on active duty, who act as admissions counselors to prospective candidates for the Air Force Academy.

ALABAMA

Col. Edward J. Cooper
 510 1st National Annex Bldg.
 Mobile, Ala.

ARIZONA

Col. Samuel R. Maxcy
 1133 East Fern Drive
 Phoenix, Ariz.

ARKANSAS

Lt. Col. Hugh E. Phelan
 P.O. Box 186
 Donaldson, Ark.

CALIFORNIA

Col. Harold A. Burroughs
 10577 Kinnard Avenue
 Los Angeles, Calif.

Col. Daniel C. McNaughton
 12771 Bubbling Well Road
 Santa Ana, Calif.

Lt. Col. William P. Gilson
 1421 Oregon Drive
 Sacramento, Calif.

Lt. Col. Elmo F. Hayden
 1014 Olive Avenue
 Menlo Park, Calif.

Lt. Col. Ernest F. Smith
 1509 East Mendocino Street
 Altadena, Calif.

Lt. Col. Leonard L. Turoski
 3613 Soranno Avenue
 Bakersfield, Calif.

Maj. Dominic C. DiGregorio
 P.O. Box 2270
 San Diego, Calif.

Maj. James S. Ritter
 3391 Mono Drive
 Riverside, Calif.

COLORADO

Lt. Col. Robert M. Cochrane
 7240 Quivas Street
 Denver, Colo.

CONNECTICUT

Maj. Alfred K. B. Tsang
 28 DevonWood Drive
 Waterbury, Conn.

DELAWARE

Col. Herbert K. Gault
4508 Roland Avenue
Baltimore, Md.

FLORIDA

Lt. Col. Guy T. Bagli
4506 Henderson Blvd.
Tampa, Fla.

Lt. Col. Robert E. Nichols
5439 Playa Way
Jacksonville, Fla.

Lt. Col. Gerard J. Yonkman
P.O. Box 906
Delray Beach, Fla.

GEORGIA

Maj. Thomas C. Brown, Jr.
550 South Hill Street
Griffin, Ga.

HAWAII

Col. Henry S. Lau
925 Fourteenth Avenue
Honolulu, Hawaii

IDAHO

Lt. Col. Charles C. Banks
2411 Washington Street
Caldwell, Idaho

ILLINOIS

Lt. Col. McGarry P. Murray
1434 W. Montrose Avenue
Chicago, Ill.

Maj. Rex D. Johnson
Oneida, Ill.

INDIANA

Lt. Col. Earl K. Sample
Box 74
Bristol, Ind.

Lt. Col. John F. Wild III
4007 Washington Blvd.
Indianapolis, Ind.

IOWA

Col. William D. Sampson
2600 48th Street Place
Des Moines, Iowa

KANSAS

Maj. John P. Quinlan
208 East Locust
Independence, Kansas

KENTUCKY

Lt. Col. Robert C. Morrow
725 South 21st Street
Paducah, Ky.

Maj. Walter H. McNeil
P.O. Box 2097
Pikeville, Ky.

LOUISIANA

Lt. Col. Max W. Maxwell
P.O. Box 726
Urania, La.

Col. Vane T. Wilson
215 Amherst Drive
Baton Rouge, La.

MAINE

Maj. Carlton E. Mendell
102 Pleasant Avenue
Portland, Maine

MARYLAND

Col. Herbert K. Gault
4508 Roland Avenue
Baltimore, Md.

Lt. Col. Harris D. Leland
329 West Edmonston Drive
Rockville, Md.

MASSACHUSETTS

Col. Lewis A. Kyrios
67 Glover Street
Southbridge, Mass.

Lt. Col. John J. Bohan
61 Montview Street
West Roxbury, Mass.

Maj. Edward J. Sandy
21 Alquat Street
Westfield, Mass.

MICHIGAN

Col. Henry F. Smith
Route 4, 15233 James Street
Holland, Mich.

Lt. Col. Edward F. Lundberg, Jr.
18755 Cambridge Blvd.
Lathrup Village, Mich.

Lt. Col. Kermit D. McAlvey
Box 231
Petoskey, Mich.

MINNESOTA

Lt. Col. William J. Kaczrowski
1031 Griffin Avenue
Mahtomedi, Minn.

MISSISSIPPI

Maj. James R. Switzer
404 Fourth Avenue
Hattiesburg, Miss.

MISSOURI

Col. John A. Riffle
Box 1055
Kansas City, Mo.

Lt. Col. Joseph L. Hummert
238 Edgar Road
Webster Groves, Mo.

MONTANA

Col. Robert E. Englert
1405 Fourth Avenue N
Great Falls, Mont.

NEBRASKA

Col. Douglas W. Jorn
108 East 12th Street
Hastings, Nebr.

NEVADA

Maj. William G. Davidson
Steptoe Route
McGill, Nev.

NEW HAMPSHIRE

Col. Arthur E. Bean, Jr.
9 Vernon Street
Concord, N.H.

NEW JERSEY

Lt. Col. Irving F. Francis
733 Fernmere Avenue
Interlaken, N.J.

NEW MEXICO

Lt. Col. Leonard S. Hartman
3016 Frontier Place, NE
Albuquerque, N.M.

NEW YORK

Col. James H. Melson
38 Palmer Avenue
Kenmore, N.Y.

Col. Milton Seaman
122 East 42nd Street
New York City, N.Y.

Lt. Col. William I. Blundell
2 Lenox Avenue
Mt. Vernon, N.Y.

Lt. Col. Alfred B. Hauft
45 West Sunrise Highway
Freeport, L.I., N.Y.

Lt. Col. Harold W. Rosenstrauch
55 Euclid Avenue
Albany, N.Y.

Maj. Richard C. Baynes
906 Madison Street
Rome, N.Y.

NORTH CAROLINA

Lt. Col. Marion W. Bird
St. Pauls City Schools
St. Pauls, N.C.

NORTH DAKOTA

Maj. Arnold B. Norman
79 Fourth Avenue N
Wahpeton, N.D.

OHIO

Lt. Col. Clarence J. Adams
2731 Vassar Place
Columbus, Ohio

Lt. Col. William C. Raitt
2531 Bremon Avenue
Cincinnati, Ohio

Lt. Col. Lawrence Spyker
1867 Shawnee Road
Lima, Ohio

Maj. Albert E. Prudence
3566 West 147th Street
Cleveland, Ohio

OKLAHOMA

Lt. Col. Lloyd G. Neblett
3916 East 40th Street
Tulsa, Okla.

OREGON

Lt. Col. Maurice E. Druhl
8444 SW Ernst Road
Portland, Ore.

PENNSYLVANIA

Col. Leo T. Foley
Moscow, Penn.

Col. Leo Niessen, Jr.
1865 Harte Road
Jenkintown, Penn.

Lt. Col. William F. Etchberger
1012 Walnut Street
Lebanon, Penn.

Maj. John R. Finfrock
123 E. Otterman Street
Greensburg, Penn.

RHODE ISLAND

Lt. Col. Vladimir G. Shutak
69 South Road
Kingston, R.I.

SOUTH CAROLINA

Lt. Col. John E. Smith
1017 Cheraw Drive
Florence, S.C.

SOUTH DAKOTA

Lt. Col. Edward J. Brodsky
Jackson Park
Rapid City, S.D.

TENNESSEE

Lt. Col. Frank B. Creekmore
904 Bank of Knoxville Bldg.
Knoxville, Tenn.

Lt. Col. John H. Gore
5975 Post Road
Nashville, Tenn.

TEXAS

Lt. Col. Floyd D. Boze
2121 55th Street
Lubbock, Tex.

Lt. Col. Quinten S. Mathews
7207 Northaven Road
Dallas, Tex.

Lt. Col. Lewis M. Spears
2205 Hopi Trail
Austin, Tex.

Capt. Edward W. Warynick
3705-C Westridge Road
Ft. Worth, Tex.

UTAH

Lt. Col. Oliver R. Smith
970 N. 12th East
Provo, Utah

VERMONT

Maj. Edward J. Sandy
21 Alquat Street
Westfield, Mass.

VIRGINIA

Lt. Col. George W. Chernault, Jr.
WSLS Radio-TV Center
3rd & Church Streets
Roanoke, Va.

Lt. Col. Worth G. Kirkman
112 Governor Berkley Road
Williamsburg, Va.

WASHINGTON

Maj. Ted U. Hart
Denny Bldg.
Walla Walla, Wash.

Capt. James S. Keck
11635 SE 45th Place
Bellevue, Wash.

WISCONSIN

Maj. Walter D. Oliver
961 Ninth Street
Menasha, Wis.

WEST VIRGINIA

Maj. Walter H. McNeil
P.O. Box 2097
Pikeville, Ky.



The Air Force Academy Band



Falcon Stadium

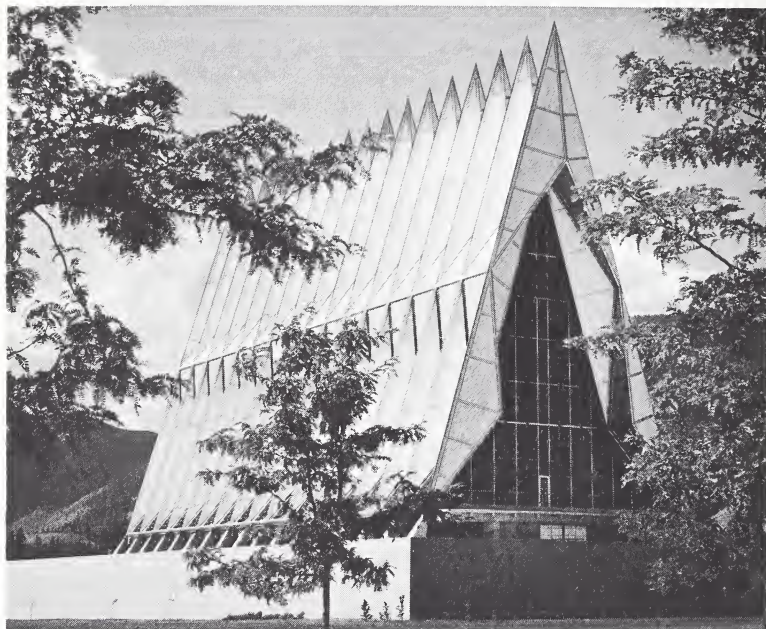


Cadet Gymnasium

INDEX

- 141 Academic Activities
- 115 Academic Counseling
- 46 Academic Preparation
- 60 Academic Program
- 29 Academic Record
- 53 Accreditation
- 32 Admission Deposit and Travel Expenses
- 16 Admission to the Academy
- 143 Advanced Education
- 46 Advanced Placement Examinations of the College Board
- 70 Aeronautics, Department of
- 132 Air Force Cadet Wing
- 111 Air Force Academy Assembly
- 35 Air Force Academy Examining Centers
- 112 Air Force Academy Library
- 50 Air Force Academy Preparatory School
- 23 Allied Students
- 19 Application Procedures, General
- 42 Application for Congressional Nomination
- 43 Application for Presidential Nomination
- 44 Application for Sons of Deceased Veterans Nomination
- 50 Arnold Educational Fund Scholarships
- 73 Astronautics, Department of
- 115 Audio-Visual Services
- 131 Basic Cadet Training
- 61 Basic Sciences, Division of
- 90 Behavioral Sciences, Department of
- 8 Board of Visitors
- 57 Cadet Achievement
- 137 Cadet Activities
- 133 Cadet's Day
- 130 Cadet Life
- 133 Cadet Uniforms
- 18 Cadet Wing Strength
- 124 Cadet Wing Training
- 140 Cadet Wing Mascot
- 4 Calendar 64-65
- 142 Career Information
- 62 Chemistry, Department of
- 28 College Entrance Examination Board Tests
- 19 Congressional Nominations
- 25 Congressional Screening
- 59 Course Numbers
- 52 Curriculum Summary
- 57 Deficiency and Dismissal
- 117 Directorate of Operations and Training
- 20 District of Columbia Nominations
- 30 Documentary Evidence
- 93 Economics and Geography, Department of
- 75 Electrical Engineering, Department of
- 17 Eligibility Requirements
- 70 Engineering Sciences, Division of
- 82 English, Department of
- 54 Enrichment Program
- 25 Examinations for Admission
- 12 Facilities of the Academy
- 59 Faculty
- 49 Falcon Foundation Scholarships
- 85 Foreign Languages, Department of
- 120 Flying Training
- 114 Frank J. Seiler Research Laboratory
- 49 Gertrude Skelly Trust Fund Scholarships
- 56 Grading
- 125 Guest Lecturers, Leadership
- 87 History, Department of
- 10 History of the Academy
- 135 Honor Code

- 22 Honor Military and Naval Schools Nominations
- 81 Humanities, Division of
- 134 Insurance for Cadets
- 129 Intercollegiate Athletics, Department of
- 128 Intramural Athletics
- 141 June Week Activities
- 97 Law, Department of
- 116 Leadership and Military Training Program
- 30 Leadership Potential
- 48 Leadership Preparation
- 134 Leaves and Special Privileges
- 109 Lecture Program, Academic
- 30 Liaison Officers for the Academy
- 55 Majors Program
- 103 Majors Requirements, Undergraduate
- 55 Master's Program
- 106 Master's Requirements
- 65 Mathematics, Department of
- 78 Mechanics, Department of
- 26 Medical and Physical Aptitude Examinations
- 37 Medical Disqualification Factors
- 5 Mission of the Academy
- 121 Navigation Division
- 19 Nominating Categories
- 24 Nominating Methods
- 25 Nominating Schedule
- 7 Objectives of the Curriculum
- 32 Obligations of Cadet Appointment
- 9 Officers of Administration
- 56 Option Courses
- 134 Pay and Allowances of Cadets
- 146 Personnel Directory
- 40 Physical Aptitude Examination Test Items
- 127 Physical Education and Athletic Program
- 127 Physical Education, Department of
- 48 Physical Preparation
- 68 Physics, Department of
- 123 Planetarium
- 122 Plans and Scheduling Division
- 98 Political Science, Department of
- 45 Preparation Guide for Candidates
- 49 Preparatory Scholarships
- 53 Prescribed Curriculum
- 20 Presidential Nominations
- 30 Previous Candidates
- 23 Qualified Alternate Candidates
- 136 Recreation for Cadets
- 21 Regular Components Nominations
- 135 Religious Program
- 114 Research Program
- 21 Reserve Components Nominations
- 22 AFROTC Units Nominations
- 144 Scholarships and Fellowships
- 90 Social Sciences, Division of
- 21 Sons of Deceased Veterans Nominations
- 22 Sons of Medal of Honor Winners Nominations
- 122 Special Activities Division
- 120 Special Privileges for Cadets
- 33 Summary, Congressional Nominations
- 6 Superintendent's Letter
- 58 Teaching Methods
- 145 Thomas D. White Award
- 117 Training Division
- 46 Transfer Credit or Validation
- 133 Uniforms of Cadets
- 20 Vice Presidential Nominations
- 132 Visitor Schedule



Cadet Chapel

Additional copies of this catalog or specific information pertaining to the Academy may be obtained by writing to:

REGISTRAR
United States Air Force Academy
Colorado

*Front cover photo taken by Stan Geist, photographer
Air Force Academy Photo Lab*

UNIVERSITY OF FLORIDA



3 1262 09684 6489

FLARE

